Cinchona Project Folders 28, 29, 30

Killip, E.P.

Pucallpa

Iquitos

Tarapoto

The Andean species of Pilea

By Ellsworth P. Killip

Introduction

The present paper is an account of the Andean species of Pilea, a genus well represented in the Andean countries north of Chile. The area treated embraces the whole of Venezuela, including the adjacent island of Curaçao, Colombia, Ecuador, Peru, Bolivia, Chile, and includes the low-lying regions as well as the Andean cordilleras. The adoption of such arbitrary political boundaries is not wholly satisfactory, but no other limits seem practicable. Obviously to limit such a study to species of high altitudes would be undesirable if not impossible. The broad river valleys, though sometimes of considerable elevation above sea-level, contain many species characteristic of the tropics at low elevations. Moreover, not infrequently, a collector's notes give only general locality data, without altitude, and it is difficult to determine whether or not a plant is strictly "Andean."

In the preparation of this revision I have had the opportunity of examining nearly all the type specimens of the Andean species involved, photographs of which are deposited in the United States National Herbarium. Through the courtesy of the directors of the Royal Botanic Kardens, Kew, the Botanisches Museum, Berlin, and the Museum d'Histoire Naturelle, Paris, there have been lent for my leisurely study at Washington most of the important collections of Pilea, such as those of Spruce, Kalbreyer, Jameson, Lehmann, Gollmer, Moritz, Fendler, Triana, and André. Other European institutions at which I have examined specimens are the British Museum (Natural History), the

Jardín Botánico, Madrid, and the Jardin Botanique, Geneva. Institutions in the United Sta es from which I have studied collections as a whole or in part are the Arnold Arboretum of Harvard University, the Field Museum of Natural History, the Gray Herbarium of Harvard University, the Missouri Botanical Garden, the Academy of Natural Sciences, Philadelphia, and the New York Botanical Garden. In South America I have seen the collections of the Goeldi Museum, Pará, and those assembled by Doctor Harvey M. Bassler at Iquitos, Peru; and the large collections of the Instituto de la Salle, Bogotá, have been lent me. To the directors of these institutions I wish to express my appreciation. The herbaria are indicated as below [1] in the citation of specimens.

Pilea is by far the largest genus of Urticaceae. Weddell, in his comprehensive monograph [2] of the family, enumerates 159 species, about 50 of which occur in South America. Since that time, 33 additional species have been described from the Andean region. Of the 111 included in the present paper, P. microphylla, P. hernarioides, P. hyalina, and P. pubescens are rather widely distributed in tropical America; P. involucrata occurs in both Central America and the West Indies; P. nummularifolia, in the West Indies; and P. pittieri and P. acuminata, in Central America. A few of the species are found also in Brazil. By far the greater number of species, however, have very limited range of distribution, many of them being known only from type material. In this respect, as well as in habit of growth, the genus is strongly suggestive of Peperomia.

---

1 A, Arnold Arboretum; B. Berlin; BM, British Museum; Bo, Bogotá; BW. Willdenow Herbarium, Berlin; F, Field Museum; G, Gray Herbarium; Go, Goeldi Museum, Pará; Gen, Geneva; K, Kew; Ma, Madrid; Mo, Missouri Botanical Garden; N, U. S. National Museum; Par, Paris; Ph, Philadelphia; Y, New York.

2 DC/ Prodr. 16 : 32-235. 1869.

Pilea

The method of treating the genus here followed is mainly that of Weddell although admittedly it is rather artificial and perhaps does not indicate the true interrelationship of the species. Many of the species are dioecious, our present knowledge being based solely on one kind of plant--the staminate or the pistillate--, so that a more natural grouping of the species, such as one based on the shape of the staminate perianth [1] or the shape and size of the achenes, is not at present practicable. The characters relied on are, therefore, the leaves, whether they are entire or toothed, whether those of a pair are dissimilar in shape and markedly unequal in size or are similar and nearly equal, whether they are 1-nerved, trinerved, or triplinerved; the cystolithic marking; the form of the inflorescence; and the presence or avsence of an indument. For convenience the species are grouped in 12 series.

---

[1] See Fawcett & Rendle, Fl. Jamaica 3: pl. 1-3. 1914.

NEW SPECIES OF PILEA FROM THE ANDES

By Ellsworth P. Killip

Associate Curator, Division of Plants,

U S. National Museum

As a result of recent botanical exploration in the Andes of South America there has been assembled a large number of specimens of the urticaceous genus Pilea. In the course of studying this material I have prepared a monograph of all the Andean species, giving a key, descriptions of the new species as well as diagnoses of those already known, and a complete citation of the synonymy and of the herbarium specimens examined. Since the publication of this manuscript is unavoidably delayed, it seems desirable to publish at the present time descriptions of the new species, and with these a key to all the Andean species, in order to show better the relationship of the new ones. The area covered embraces the whole of Venezuela, Colombia, Ecuador, Peru, Bolivia, and Chile, including the low-lying regions as well as the cordilleras. In view of the restricted character of the present paper it is not possible to discuss the synonymy or to give in detail the geographical distribution of the species previously described.

The method of treating the genus here followed is mainly that of Weddell, [1] although admittedly it is rather artificial and perhpas does not indicate the true interrelationship of the species.

Many of the species being dioecious, our present knowledge is often based solely on one kind of plant -- the staminate or the pistillate -- so that a more natual grouping, such as one based on the shape of the staminate perianth or the shape and size of the achenes, is not at present practicable.

---

[1] Arch. Mus. Hist. Nat. (Paris) 9: 172-277. 1856-57; DC. Frodr. 16[1]: 32-235. 1869.

In the course of these studies I have examined material in most of the principal herbaria [2] of Europe and this country, and I wish to express to the directors of these institutions my appreciation of their generous cooperation.

---

[2] The herbaria in which specimens cited in the present paper have been seen are indicate thus: B, Botanisches Museum, Berlin; BM, British Museum (Natural History); F, Field Museum of Natural History; G, Gray Herbarium of Harvard University; Gen, Jardin Botanique, Geneva; K, Royal Botanic Gardens, Kew; Ma, Jardín Botanico, Madrid; N, U. S. National Museum; Par, Muséum d'Histoire Naturelle, Paris; Ph, Academy of Natural Sciences, Philadelphia; Y, New York Botanical Garden.

It is apparent to all students of Andean plants that there is an urgent need for a descriptive flora of that region or at least for systematic reviews of some of its more important genera. No complete flora of the Andes has ever been written nor, indeed, is there any completed systematic account of the plants of the five important countries, Venezuela, Colombia, Ecuador, Peru and Bolivia, comparable to the floras of Chile by Gay and by Reiche. Jameson's Flora of Ecuador, published in is the nearest approach to such a flora but it omitted a number of species known at that time, but now, of course, is woefully out of date.

Triana and Planchon commenced the publication of a "Prodromus Novae Granatensis" in and had covered the families between Ranunculaceae and when the work was discontinued. Cortes' "Flora de Colombia"[1] is a creditable attempt to bring together in a single treatment the numerous species of that country, but Cortes was handicapped by not having access to the large herbaria of the world, and inevitably there are many omissions and erroneous interpretations of species in that work. Its chief value lies in the lists of local names and in the copious notes on the uses of the plants. Pittier's "Manual de las Plantas Usuales de Venezuela" contains a wealth of information on the economic features of the Venezuelan flora but, of course, is not a descriptive, systematic treatment. Knuth's "Flora de Venezuela"[2] is a most important first step toward the preparation of ~~the~~ a flora of Venezuela. Professor F. L. Herrera, of the University of Cuzco, has published several lists of the plants of Cuzco, Peru, his last paper containing a complete record of all species of plants known by him to occur in that department.

---

1. First edition 1897.
2. Fedde, Repert. Sp. Nov. Beih. 43.
3. Estudios sobre la Flora del Departamento de Cuzco, 1930

The only general flora of the Andes that has been undertaken is the Chloris Andina by Weddell . Only a small part of the Andean plants are here treated and these are mainly ones of the higher mountains. The sources for an Andean flora are many. First there are the accounts of the collections of the early explorers, many of them profusely illustrated, such as Ruiz and Pavon's "Flora Peruviana et Chilensis", Humboldt and Bonpland's "Plantae Aequinoctiales", Humboldt, Bonpland, and Kunth's "Nova Ganera et Species", and Bentham's "Plantae Hartwegianae". There are the series of papers, running often through many volumes of a publication, describing the new or especially interesting species of later collectors, as Plantae Lehmannianae, Plantae Stuebelianae, Plantae Weberbauerianae, Plantae Tessmannianae, and Plantae Werdermannianae, edited by German botanists, and reports by Doctor N. L. Britton and Doctor H. H. Rusby on the collections of Rusby, Bang, and Williams in Bolivia. Finally there are the hundreds of papers in which botanists have published the results of their current studies of miscellaneous material submitted for identification.

That monumental work, Martius' Flora Brasiliensis, still remains the most important source of reference in the study of Andean plants belonging to certain families. Some of the contributors to that work treated in detail all South American species; others only incidentally mentioned the species not occurring in Brazil or omitted them altogether.

For the families that have been monographed in the "Pflanzenreich" that work of course is most important, but because of its world-wide scope necessarily its completion will be a matter of years.

There is a growing realization that the time has now come to bring together these hundreds of Andean species, described by numerous botanists over a period of more than a century and a half. To this end, there have appeared within recent years several revisions of critical families of

genera of Andean plants, the geographic scopte of these varying from a single country or a section of the Andes to all the Andean area. Among these may be mentioned the Stevias of Colombia, Venezuela, and Ecuador, by B. L. Robinson, which appeared a separate papers[1]; "The Oenotheras of northwestern South America"[2], by P. A. Munz and I. M. Johnston; the Rubiaceae of Venezuela, Colombia, Ecuador, and Bolivia, by P. C. Standley which appeared as separate papers[3]; "The Nyctaginaceae and Chenopodiaceae of northwestern South America"[4], by P. C. Standley; "Scrophulariaceae of Colombia-I"[5], by F. W. Pennell; "The Genus Monochaetum in South America"[6], by H. A. Gleason, as well as several revisions of genera or parts of ganera of Melastomaceae, Lobeliaceae, and Hypericaceae by the same author; revisions of the Venezuela Mimosaceae, Caesalpiniaceae, Papilionaceae, and families of Geraniales[7] by H. Pittier; "The genus Mendoncia in Peru[8] and "The genus Sanchezia in Peru"[9], by E. C. Leonard; and "The genus Vibunun in northwestern South America"[10], and "The genus Weinmannia in northern South America"[11], by E. P. Killip and A. C. Smith.

---

1. Contr. Gray Herb. no. 96. 1931.
2. Contr. Gray Herb. no. 75. 1925.
3. Field Mus. Publ. Bot. 7: nos. 1-4. 1930-1931.
4. Field Mus. Publ. Bot. 9: no. 3. 1931.
5. Proc. Acad. Nat. Sci. Phila. 1920: 136-188. 1920.
6. Amer. Journ. Bot. 16: 502-522, 1922.
7. Bol. Minist. R. R. E. E. Venez. 1927-1930.
8. Journ. Washington Acad. Sci. 21: 144-152. 1931.
9. Journ Washington Acad. Sci. 22: __ . 1932.
10. Bull. Torrey Club 56: 265-274. 1929.
11. Bull. Torrey Club 56: 361-377. 1929.

Among recent monographs which cover an area larger than the six Andean countries but in which Andean species predominate are: "Monographia Loasacearum", by Urban and Gilg; "Gentianaceae Andinae"[12], by E. Gilg; "A revision of the South American Boraginoideae"[13], and "The South American species of Heliotropium"[14], by I. M. Johnston; and "The South American spedies of Viburnum"[15], by E. P. Killip and A. C. Smith. In the present paper there is presented a revision of the Andean species of Pilea, a genus well represented in the Andean countries north of Chile. The area treated embraces the whole of Venezuela, including the adjacent island of Curaçao, Colombia, Ecuador, Peru, Bolivia, and Chile, and includes the low-lying regions as well as the Andean Cordilleras. The adoption of such arbitrary political boundaries is not wholly satisfactory, but no other limits seem practicable. Obviously to limit such a study to species of high eltitude would be undesirable if not impossible. The broad river valleys, though sometimes of considerable elevation above sea-level, contain many species characteristic of the tropics at low elevations. Moreover, not infrequently, a collector's notes give only general locality data, without altitude, and it is difficult to determine whether or not a plant is strictly "Andean".

In the preparation of this revision I have had the opportunity of examining nearly all the type specimens of the Andean species involved, photographs of which are deposited in the United States National Herbarium.

---

12. Bot. Jahrb. Engler 54: Beibl. 118: 4-122. 1916.

13. Contr. Gray Herb. 78: 1-118. 1927.

14. Contr. Gray Herb. 81: 3-73. 1928.

15. Bull. Torrey 57: 245-258. 1931.

Through the courtesy of the directors of the Royal Botanic Gardens, Kew, and the Botanisches Museum, Berlin, there have been lent for my leisurely study at Washington, most of the important collections of Pilea, ~~and Cordia~~, such as those of Spruce, Kalbreyer, Jameson, Lehmann, Gollmer, Moritz, Fendler, Triana, and André. Other European institutions, at which I have examined specimens, are the British Museum (Natural History), the Musée ~~National~~ d'Histoire Naturelle, Paris, and the Jardin Botanique, Geneva. Institutions in the United States from which I have examined collections as a whole or in part, are the Arnold Arboretum of Harvard University, the Field Museum of Natural History, the Gray Herbarium of Harvard University, the Missouri Botanical Garden, the Philadelphia Academy of Natural Sciences, the New York Botanical Garden. To the directors of all of these I wish to express my appreciation. ~~These institutions~~ are indicated thus in the citation of specimens:

A. Arnold Arboretum

B. Berlin

BM. British Museum

Bo Instituto de la Salle, Bogotá.

F. Field Museum

G. Gray Herbarium

Ge. Goeldi Museum, Pará

Gen Geneva

K. Kew

Ma Jardin Botanico, Madrid

Mo. Missouri Botanical Garden

N. U. S. National Museum

Par Paris

Ph Philadelphia

~~X.~~

Y. New York

In South America I have seen the collections at the Museum, Pará, and the herbaria of the institutions assembled by Doctor Harvey M. Bowler, at Iquitos, Peru.

Pilea is by far the largest genus of Urticaceae. Weddell, in his comprehensive monograph[1] of the family, enumerates 159 species, about 50 of which occur in South America. Since that time, __ additional species have been described from South American material. Of the 102 included in the present paper, P. microphylla, P. hernarioides, P. parietaria, P. hyalina, and P. pubescens are rather widely distributed in tropical America; P. involucrata occurs in both Central America and the West Indies; P. nummularifolia, in the West Indies; and P. pittieri and P. acuminata, in Central America. A few of the species are found also in Brazil. By far the greater number of species, however, have very limited range of distribution, many of them being known only from type material. In this respect, as well as in habit of growth, the genus is strongly suggestive of Peperomia.

The method of treating the genus here followed is mainly that of Weddell although admittedly it is rather artificial and perhaps does not indicate the true interrelationship of the species. Many of the species are dioecious, our present knowledge being based solely on one kind of a plant--the staminate or the pistillate--so that a more natural grouping of the species, such as one based on the shape of the staminate perianth or the shape and size of the achenes, is not at present practicable. The characters relied on are, therefore, the leaves, whether they are entire or toothed, whether those of a pair are dissimilar in shape and much unequal in size or are similar and nearly equal, whether they are 1-nerved, trinerved, or triplinerved; the cystolithic marking; the form of the inflorescence; and the presence or absence of an indument. For convenience the species are grouped in 12 sections.

---

1. DC. Prodr. 16[1]: 32-235. 1869.

Sample

The Andean species of Pilea : THIBAUDIEAE

By Ellsworth P. Killip

Introduction

The present paper is an account of the Andean species of Pilea, a genus of Urticaceae well represented in the Andean countries north of Chile. The area treated embraces the whole of Venezuela, with the adjacent island of Curaçao, Colombia, Ecuador, Peru, Bolivia, and Chile, including the low-lying regions as well as the Andean cordilleras. The adoption of such arbitrary political boundaries is not wholly satisfactory, but no other limits seem practicable. Obviously to restrict such a study to species of high altitudes would be undesirable, if not impossible. The broad river valleys, though sometimes of considerable elevation above sea-level, contain many species characteristic of the tropics at low elevations. Moreover, not infrequently a collector's notes give only general locality data, without altitude, making it difficult to determine whether or not a plant is strictly "Andean."

In the preparation of this revision I have had the opportunity of examining nearly all the type specimens of the earlier Andean species involved, photographs of which are deposited in the United States National Herbarium. Through the courtesy of the directors of the Royal Botanic Gardens, Kew, the Botanisches Museum, Berlin, and the Muséum d'Histoire Naturelle, Paris, there have been lent for my leisurely study at Washington most of the important collections of Pilea, such as those of Spruce, Kalbreyer, Jameson, Lehmann, Gollmer, Moritz, Fendler, Triana, and André. Other European institutions at which I have examined specimens are the British Museum (Natural History), the Linnean Society, London,

Jardín Botánico, Madrid, and the Jardin Botanique, Geneva. Institutions in the United States from which I have studied collections in whole or in part are the Arnold Arboretum of Harvard University, the Field Museum of Natural History, the Gray Herbarium of Harvard University, the Missouri Botanical Garden, the Academy of Natural Sciences of Philadelphia, and the New York Botanical Garden. In South America I have seen the collections of the Goeldi Museum, Pará, and those assembled by ~~Doctor~~ Harvey M. Bassler at Iquitos, Peru ~~and~~ also the large collections of the Instituto de la Salle, Bogotá, have been lent me. To the directors of these institutions I wish to express my appreciation. The herbaria are indicated as below[1] in the citation of specimens.

¶ Pilea is by far the largest genus of Urticaceae. Weddell, in his comprehensive monograph[2] of the family, published in 1869, enumerates 159 species, about 50 of which occur in South America. Since that time, 33 additional species have been described from the Andean region. Of the 111 included in the present paper, P. microphylla, P. hernarioides, P. dauciodora, P. hyalina, and P. pubescens are rather widely distributed in tropical America; P. involucrata occurs in both Central America and the West Indies; P. nummularifolia, in the West Indies; and P. lindeniana, P. pittieri, and P. acuminata, in Central America. A few of the species are found also in the Guianas and Brazil. By far the greater number, however, have a very limited range of distribution, many of them being known only from the type material. In this respect, as well as in habit of growth, the genus is strongly suggestive of Peperomia.

---

[1] A, Arnold Arboretum; B. Berlin; BM, British Museum; Bo, Bogotá; BW, Willdenow Herbarium, Berlin; F, Field Museum; G, Gray Herbarium; Go, Goeldi Museum, Pará; Gen, Geneva; K, Kew; Ma, Madrid; Mo, Missouri Botanical Garden; N, U. S. National Museum; Par, Paris; Ph, Philadelphia; Y, New York.

[2] DC. Prodr. 16: 32-235. ~~1869.~~

¶ The method of treating the genus here followed is mainly that of Weddell, although admittedly it is rather artificial and perhaps does not indicate the true interrelationship of the species. Many of the species being dioecious, our present knowledge being often based solely on one kind of plant—the staminate or the pistillate, so that a more natural grouping of the species, such as one based on the shape of the staminate perianth[3] or the shape and size of the achenes, is not at present practicable. The characters relied on are, therefore, the leaves, whether they are entire or toothed, whether those of a pair are dissimilar in shape and markedly unequal in size or are similar and nearly equal, whether they are 1-nerved, trinerved, or triplinerved; the cystolithic marking; the form of the inflorescence; and the presence or absence of an indument. For convenience the species are arranged in 12 groups.

---

[3] See Fawcett & Rendle, Fl. Jamaica 3: pl. 1-3. 1914.

p. 6
footnote 2
See Fawcett & Rendle, Fl. Jamaica
3: pl. 1–3. 1914.
?

Among recent monographs which cover an area larger than the six Andean countries but in which Andean species predominate are: "Monographia Loasacearum," by Urban and Gilg; "Gentianaceae Andinae,"[12] by E. Gilg; "A revision of the South American Boraginoideae,"[13] and "The South American species of Heliotropium,"[14] by I. M. Johnston; and "The South American species of Viburnum,"[15] by E. P. Killip and A. C. Smith.

In the present paper there is presented a revision of the Andean species of Pilea, a genus well represented in the Andean countries north of Chile. The area treated embraces the whole of Venezuela, including the adjacent island of Curaçao, Colombia, Ecuador, Peru, Bolivia, and Chile, and includes the low-lying regions as well as the Andean cordilleras. The adoption of such arbitrary political boundaries is not wholly satisfactory, but no other limits seem practicable. Obviously to limit such a study to species of high altitude would be undesirable if not impossible. The broad river valleys, though sometimes of considerable elevation above sea-level, contain many species characteristic of the tropics at low elevations. Moreover, not infrequently, a collector's notes give only general locality data, without altitude, and it is difficult to determine whether or not a plant is strictly "Andean."

In the preparation of this revision I have had the opportunity of examining nearly all the type specimens of the Andean species involved, photographs of which are deposited in the United States National Herbarium. Through the

---

12. Bot. Jahrb. Engler 54: Beibl. 118: 4-122. 1916.

13. Contr. Gray Herb. 78: 1-118. 1927.

14. Contr. Gray Herb. 81: 3-73. 1928.

15. Bull. Torrey 57: 245-258. 1931.

courtesy of the directors of the Royal Botanic Gardens, Kew, the Botanisches Museum, Berlin, and the Muséum d'Histoire Naturelle, Paris, there have been lent for my leisurely study at Washington, most of the important collections of Pilea, such as those of Spruce, Kalbreyer, Jameson, Lehmann, Gollmer, Moritz, Fendler, Triana, and André. Other European institutions, at which I have examined specimens, are the British Museum (Natural History), The Jardín Botánico, Madrid, and the Jardin Botanique, Geneva. Institutions in the United States from which I have ~~examined~~ studied collections as a whole or in part, are the Arnold Arboretum of Harvard University, the Field Museum of Natural History, the Gray Herbarium of Harvard University, the Missouri Botanical Garden, the Philadelphia Academy of Natural Sciences, and the New York Botanical Garden. In South America I have seen the collections of the Goeldi Museum, Pará, and those assembled by Doctor Harvey M. Bassler at Iquitos, Peru; and the large collections of the Instituto de la Salle, Bogotá, have been lent me. To the directors of these institutions I wish to express my appreciation. The herbaria are indicated ~~thus~~ as follows in the citation of specimens.

A, Arnold Arboretum;
B, Berlin;
BM, British Museum;
Bo, Bogotá;
BW, Willdenow Herbarium, Berlin;
F, Field Museum;
G, Gray Herbarium;
Go, Goedi Museum, Pará;
Gen, Geneva;
K, Kew;
Ma, Madrid;
Mo, Missouri Botanical Garden;
N, U. S. National Museum;
Par, Paris;
Ph, Philadelphia;
Y, New York.

Pilea is by far the largest genus of Urticaceae. Weddell, in his comprehensive monograph [1] of the family, enumerates 159 species, about 50 of which occur in South America. Since that time, 33 additional species have been described from ~~South American material~~ from the Andean region. Of the ~~133~~ 111 included in the present paper, P. microphylla, P. hernarioides, P. hyalina, and P. pubescens are rather widely distributed in tropical America; P. involucrata occurs in both Central America and the West Indies; P. nummularifolia, in the West Indies; and P. pittieri and P. acuminata, in Central America. A few of the species are found also in Brazil. By far the greater number of species, however, have very limited range of distribution, many of them being known only from type material. In this respect, as well is in habit of growth, the genus is strongly suggestive of Peperomia.

The method of treating the genus here followed is mainly that of Weddell although admittedly it is rather artificial and perhaps does not indicate the true interrelationship of the species. Many of the species are dioecious, our present knowledge being based solely on one kind of plant--the staminate or the pistillate,--so that a more natural grouping of the species, such as one based on the shape of the staminate perianth or the shape and size of the achenes, is not at present practicable. The characters relied on are, therefore, the leaves, whether they are entire or toothed, whether those of a pair are dissimilar in shape and ~~much~~ markedly unequal in size or are similar and nearly equal, whether they are 1-nerved, trinerved, or triplinerved; the cystolithic marking; the form of the inflorescence; and the presence or absence of an indument. For convenience the species are grouped in 12 ~~sections.~~ series.

---

[1] DC. Prodr. 16[1]: 32-235. 1869.

It is apparent to all students of Andean plants that there is an urgent need for a descriptive flora of that region or at least for systematic reviews of some of its more important groups. No complete flora of the Andes has ever been written nor, indeed, is thereany completed systematic account of the plants of the five important countries, Venezuela, Colombia, Ecuador, Peru, and Bolivia, comparable to the floras of Chile by Gay and by Reiche. Jameson's Fora of Ecuador, published in is the nearest approach to such a flora, but it omitted anumber of species known at that time, and now, of course, is woefully out of date.

Triana and Planchon commenced the publication of a "Prodromus Novae Granatensis" in and had covered the families between Ranunculaceae and when the work was discontinued. Cortés' "Flora de Colombia" [1] is a creditable attempt to bring together in a single treatment the numerous species of that country, but Cortés was handicapped by not having access to the large herbaria of the world, and inevitably there are many omissions and erroneous interpretations of species in that work. Its chief value lies in the lists of local names and in the copious notes on the uses of the plants. Pittier's "Manual de las Plantas Usuales de Venezuela" contains a wealth of information on the economic features of the Venezuelan flora but, of course, is not a descriptive, systematic treatment. Kuth's "Flora de Venezuela" [2] is a most important first step toward the preparation of a flora of Venezuela. Professor F. L. Herrera, of the University of Cuzco, has published several lists of the plants of Cuzco, Peru, his last paper [3] containing a complete record of all species of plants known by him to occur in that department.

---

1. First edition 1897.

2. Fedde, Repert. Sp. Nov. Beih. 43.

3. Estudio sobre la Flora del Departamento de Cuzco, 1930.

The only general flora of the Andes that has been undertaken is the Chloris Andina of Weddell . Only a small part of the Andean plants are here treated and these are mainly ones of the higher mountains.

In addition to those already mentioned there are many other sources for an Andean flora. First, there are the accounts of the collections of the early explorers, many of them profusely illustrated, such as Ruiz and Pavon's "Flora, Peruviana et Chilensis", Humboldt and Bonpland's "Plantae Aequinoctiales", Humboldt, Bonpland, and Kunth's "Nova Genera et Species", and Bentham's "Plantae Hartwegianae". Then there are the series of papers, running often through many volumes of a publication, describing the new or especially interesting species of later collectors, as Plantae Lehmannianae, Plantae Stuebelianae, Plantae Weberbauerianae, Plantae Tessmannae, and Plantae Werdermannae, edited by German botanists, and reports by ~~Doctor~~ N. L. Britton and ~~Doctor~~ H. H. Rusby on the collections of Rusby, Bang, and Williams in Bolivia. Finally there are the hundreds of papers in which botanists have published the results of their current studies of miscellaneous material submitted for identification.

That monumental work Martius' Flora Brasiliensis still remains the most important source of reference in the study of Andean plants belonging to certain families. Some of the contributors to that work treated in detail all South American species; others only incidentally mentioned the species not occurring in Brazil or omitted them altogether.

For the families that have been monographed in the "Pflanzenreich" that work of course is most important, but because of its world-wide scope necessarily its completion will be a matter of years.

There is a growing realization that the time has now come to bring together these hundreds of Andean species, described by numerous botanists over a period of more than a century and a half. To this end, there have appeared within recent

years several revisions of critical families or genera of Andean plants, the geographic scope of these varying from a single country or a section of the Andes to all the Andean area. Among these may be mentioned the Stevias of Colombia, Venezuela, and Ecuador, by B. L. Robinson, which appeared as separate papers;[1] "The Oenotheras of northwestern South America,"[2] by P. A. Munz and I. M. Johnston; the Rubiaceae of Venezuela, Colombia, Ecuador, and Bolivia, by P. C. Standley which appeared as separate papers;[3] "The Nyctaginaceae and Chenopodiaceae of northwestern South America,"[4] by P. C. Standley; "Scrophulariaceae of Colombia-I,"[5] by F. W. Pennell; "The genus Monochaetum in South America,"[6] by H. A. Gleason, as well as several revisions of genera or parts of genera of Melastomaceae, Lobeliaceae, and Hypericaceae by the same author; revisions of the Venezuela Mimosaceae, Caesalpiniaceae, Papilionaceae, and families of Geraniales[7] by H. Pittier; "The genus Mendoncia in Peru,"[8] and "The genus Sanchezia in Peru,"[9] by W. C. Leonard; and "The genus Viburnum in northwestern South America,"[10] and "The genus Weinmannia in northern South America,"[11] by W. P. Killip and A. C. Smith.

---

1. Contr. Gray Herb. no. 96. 1931.

2. Contr. Gray Herb. no. 75. 1925.

3. Field Mus. Publ. Bot. 7: nos. 1-4. 1930-1931.

4. Field Mus. Publ. Bot. 9: no. 3. 1931.

5. Proc. Acad. Nat. Sci. Phila. 1920: 136-188. 1920.

6. Amer. Journ. Bot. 16: 502-522. 1922.

7. Bol. Minist. R. R. E. E. Venez. 1927-1930.

8. Journ. Washington Acad. Sci. 21: 144-152. 1931.

9. Journ. Washington Acad. Sci. 22: 1932.

10. Bull. Torrey Club 56: 265-274. 1929.

11. Bull. Torrey Club 56: 361-377. 1929.

Among recent monographs which cover an area larger than the six Andean countries but in which Andean species predominate are: "Monographia Loasacearum," by Urban and Gilg; "Gentianaceae Andinae,"[12] by E. Gilg; "A revision of the South American Boraginaideae,"[13] and "The South American species of Heliotropium,"[14] by I. M. Johnston; and "The South American species of Viburnum,"[15] by E. P. Killip and A. C. Smith.

In the present paper there is presented a revision of the Andean species of Pilea, a genus well represented in the Andean countries north of Chile. The area covered embraces the whole of Venezuela, including the adjacent island of Curacao, Colombia, Ecuador, Peru, Bolivia, and Chile, and includes the low-lying regions as well as the Andean cordilleras. The adoption of such arbitrary political boundaries is not wholly satisfactory, but no other limits seem practicable. Obviously to restrict such a study to species of high altitude would be undesirable if not impossible. The broad river valleys, though sometimes of considerable elevation above sea-level, contain many species characteristic of the tropics at low elevations. Moreover, not infrequently, a collector's notes give only general locality data, without altitude, and it is difficult to determine whether or not a plant is strictly "Andean."

In the preparation of this revision I have had the opportunity of examining nearly all the type specimens of the Andean species involved, photographs of which are deposited in the United States National Herbarium. Through the

---

12. Bot. Jahrb. Engler 54: Beibl. 118: 4-122. 1916.

13. Contr. Gray Herb. 78: 1-118. 1927.

14. Contr. Gray Herb. 81: 3-73. 1928.

15. Bull. Torrey 57: 245-258. 1931.

courtesy of the directors of the Royal Botanic Gardens, Kew, the Botanisches Museum, Berlin, and the Muséum d'Histoire Naturelle, Paris, there have been lent for my leisurely study at Washington, most of the important collections of Pilea, such as those of Spruce, Kalbreyer, Jameson, Lehmann, Gollmer, Morita, Fendler, Triana, and André. Other European institutions, at which I have examined specimens, are the British Museum (Natural History), The Jardín Botanico, Madrid, and the Jardin Botanique, Geneva. Institutions in the United States from which I have examined collections as a whole or in part, are the Arnold Arboretum of Harvard University, the Field Museum of Natural History, the Gray Herbarium of Harvard University, the Missouri Botanical Garden, the Philadelphia Academy of Natural Sciences, and the New York Botanical Garden. In South America I have seen the collections of the Goeldi Museum, Pará, and those assembled by Doctor Harvey M. Bassler at Iquitos, Peru; and the large collections of the Instituto de la Salle, Bogotá, have been lent me. To the directors of these institutions I wish to express my appreciation. The herbaria are indicated thus in the citation of specimens.

A. Arnold Arboretum

B. Berlin

BM. British Museum

Bo. Bogotá

F. Field Museum

G. Gray Herbarium

Go. Goedi Museum, Pará

Gen. Geneva

K. Kew

Ma. Madrid

Mo. Missouri Botanical Garden

N. U. S. National Museum

Par. Paris

Ph. Philadelphia

Y. New York.

Pilea is by far the largest genus of Urticaceae. Weddell, in his comprehensive monograph [1] of the family, enumerates 159 species, about 50 of which occur in South America. Since that time, ___ additional species have been described from South American material. Of the 102 included in the present paper, P. microphylla, P. hernarioides, P. hyalina, and P. pubescens are rather widely distributed in tropical America; P. involucrata occurs in both Central America and the West Indies; P. nummulatifolia, in the West Indies; and P. pittieri and P. acuminata, in Central America. A few of the species are found also in Brazil. By far the greater number of species, however, have very limited range of distribution, many of them being known only from type material. In this respect, as well is in habit of growth, the genus is strongly suggestive of Peperomia.

The method of treating the genus here followed is mainly that of Wedddell, although admittedly it is rather artificial and perhaps does not indicate the true interrelationship of the species. Many of the species are dioecious, our present knowledge being based solely on one kind of plant--the staminate or the pistillate,--so that a more natural grouping of the species, such as one based on the shape of the staminate perianth or the shape and size of the achenes, is not at present practicable. The characters relied on are, therefore, the leaves, whether they are entire or toothed, whether those of a pair are dissimilar in shape and much unequal in size or are similar and nearly equal, whether they are 1-nerved, trinerved, or triplinerved; the cystolithic marking; the form of the inflorescence; and the presence or absence of an indument. For convenience the species are grouped in 12 sections.

---

1. DC. Prodr. 16^1: 32-235. 1869

It is apparent to all students of Andean plants that there is an urgent need for a descriptive flora of that region or at least for systematic reviews of some of its more important groups. No complete flora of the Andes has ever been written nor, indeed, is there any completed systematic account of the plants of the five important countries, Venezuela, Colombia, Ecuador, Peru, and Bolivia, comparable to the floras of Chile by Gay and by Reiche. Jameson's Flora of Ecuador, published in is the nearest approach to such a flora, but it omitted a number of species known at that time, and now, of course, is woefully out of date.

Triana and Planchon commenced the publication of a "Prodromus Novae Granatensis" in 1862 and had covered ~~the~~ about 50 families, 2 plants, ~~between Ranunculaceae and~~ when the work was discontinued. Cortés' "Flora de Colombia" [1] is a creditable attempt to bring together in a single treatment the numerous species of that country, but Cortés was handicapped by not having access to the large herbaria of the world, and inevitably there are many omissions and erroneous interpretations of species in that work. Its chief value lies in the lists of local names and in the copious notes on the uses of the plants. Pittier's "Manual de las Plantas Usuales de Venezuela" contains a wealth of information on the economic features of the Venezuelan flora but, of course, is not a descriptive, systematic treatment. Knuth's "Flora de Venezuela" [2] is a most important first step toward the preparation of a flora of Venezuela. Professor F. L. Herrera, of the University of Cuzco, has published several lists of the plants of Cuzco, Peru, his last paper [3] containing a complete record of all species of plants known by him to occur in that department.

---

1. First edition 1897.

2. Fedde, Repert. Sp. Nov. Beih. 43.

3. Estudio sobre la Flora del Departamento de Cuzco, 1930.

The only general flora of the Andes that has been undertaken is the Chloris Andina of Weddell . Only a small part of the Andean plants are here treated and these are mainly ones of the higher mountains.

In addition to those already mentioned there are many other sources for an Andean flora. First, there are the accounts of the collections of the early explorers, many of them profusely illustrated, such as Ruiz and Pavon's "Flora, Peruviana et Chilensis", Humboldt and Bonpland's "Plantae Aequinoctiales", Humboldt, Bonpland, and Kunth's "Nova Genera et Species", and Bentham's "Plantae Hartwegianae". Then there are the series of papers, running often through many volumes of a publication, describing the new or especially interesting species of later collectors, as Plantae Lehmannianae, Plantae Stuebelianae, Plantae Weberbauerianae, Plantae Tessmannae, and Plantae Werdermannae, edited by German botanists, and reports by Doctor N. L. Britton and Doctor H. H. Rusby on the collections of Rusby, Bang, and Williams in Bolivia. Finally there are the hundreds of papers in which botanists have published the results of their current studies of miscellaneous material submitted for identification.

That monumental work Martius' Flora Brasiliensis still remains the most important source of reference in the study of Andean plants belonging to certain families. Some of the contributors to that work treated in detail all South American species; others only incidentally mentioned the species not occurring in Brazil or omitted them altogether.

For the families that have been monographed in the "Pflanzenreich" that work of course is most important, but because of its world-wide scope necessarily its completion will be a matter of years.

There is a growing realization that the time has now come to bring together these hundreds of Andean species, described by numerous botanists over a period of more than a century and a half. To this end, there have appeared within recent

years several revisions of critical families or genera of Andean plants, the geographic scope of these varying from a single country or a section of the Andes to all the Andean area. Among these may be mentioned the Stevias of Colombia, Venezuela, and Ecuador, by B. L. Robinson, which appeared as separate papers;[1] "The Oenotheras of northwestern South America,"[2] by P. A. Munz and I. M. Johnston; the Rubiaceae of Venezuela, Colombia, Ecuador, and Bolivia, by P. C. Standley which appeared as separate papers;[3] "The Nyctaginaceae and Chenopodiaceae of northwestern South America,"[4] by P. C. Standley; "Scrophulariaceae of Colombia-I,"[5] by F. W. Pennell; "The genus Monochaetum in South America,"[6] by H. A. Gleason, as well as several revisions of genera or parts of genera of Melastomaceae, Lobeliaceae, and Hypericaceae by the same author; revisions of the Venezuela Mimosaceae, Caesalpiniaceae, Papilionaceae, and families of Geraniales[7] by H. Pittier; "The genus Mendoncia in Peru"[8] and "The genus Sanchezia in Peru,"[9] by E. C. Leonard; and "The genus Viburnum in northwestern South America,"[10] and "The genus Weinmannia in northern South America,"[11] by E. P. Killip and A. C. Smith.

---

1. Contr. Gray Herb. no. 96. 1931.

2. Contr. Gray Herb. no. 75. 1925.

3. Field Mus. Publ. Bot. 7: nos. 1-4. 1930-1931.

4. Field Mus. Publ. Bot. 9: no. 3. 1931.

5. Proc. Acad. Nat. Sci. Phila. 1920: 136-188. 1920.

6. Amer. Journ. Bot. 16: 502-522. 1922.

7. Bol. Minist. R. R. E. E. Venez. 1927-1930.

8. Journ. Washington Acad. Sci. 21: 144-152. 1931.

9. Journ. Washington Acad. Sci. 22: 1932.

10. Bull. Torrey Club 56: 265-274. 1929.

11. Bull. Torrey Club 56: 361-377. 1929.

Citations used in Bonnet.

A. Arnold Arboretum of Harvard University

B. Botanischer Museum, Berlin-Dahlem

Bas. H. H. Bassler Herbarium, consulted at Iquitos, Peru; now on deposit at the New York Botanical Garden

BG. Botanic Gardens, Georgetown, British Guiana

BM. British Museum (Natural History)

Bog. Institute de la Salle, Bogota

Boiss. Boissier Herbarium

Brux. Jardin de l'Etat, Brussels

BW. Willdenow Herbarium, Botanisches Museum, Berlin

Cal. University of California

CAS. California Academy of Sciences

CM. Carnegie Museum

Cop. Universitetets Botaniske Museum, Copenhagen

CU. Catholic University of America

F. Field Museum of Natural History

G. Gray Herbarium of Harvard University

Gen. Conservatoire et Jardin Botaniques, Geneva

Go. Goldi Museum, Para

Gt. Gottingen

HA. Academy of Sciences, Havana

HNC. Herbario Nacional de Colombia, Bogota

HS. Colegio de la Salle, Havana

HV. Agricultural Experiment Station, Santiago de las Vegas, Cuba.

J. Hope Gardens, Jamaica

K. Royal Botanic Gardens, Kew.

Leid.	Rijks Universiteit, Leiden
Linn.	Linnaean Herbarium, London
Ma.	Jardin Botanico, Madrid
Mich.	University of Michigan
Minn.	University of Minnesota
Mo.	Missouri Botanical Garden
N.	U. S. National Museum
Na.	National Arboretum, Washington, D. C.
P.	Museum d'Histoire Naturelle, Paris.
Penn.	University of Pennsylvania.
Ph.	Academy of Natural Sciences, Philadelphia
Po.	Pomona College
Pr.	Narodne Museum, Prague
Roch.	Rochester Academy of Science.
S.	Richsmuseum, Stockholm
SU.	Stanford University
T.	Department of Agriculture, Port-of-Spain, Trinidad.
Up.	Universitetets Botaniska Tradgard, Uppsala.
Ut.	Rijks Universiteit, Utrecht
V.	Naturlustorisches Museum, Vienna
Y.	New York Botanical Garden

Of the 114 species treated as valid in the follwwing text P. microphylla, P. hernaricides, P. hyalina, and P. pubescens are rather widely distributed in tropical America; P. involucrata and P. nummularifolia occur in ~~both~~ Central America ~~and~~ the West Indies; P. acuminata ranges from Mexico to Colombia; and P. pittieri, first described from Costa Rica, is known from northern Colombia. ~~By~~ far the greater number of species, however, have a very limited range of distribution, many of them being known only from type material. In this respect, as well as in habit of grwoth, the genus is strongly suggestive of Peperomia.

SPECIMEN IN TYPE HERBARIUM

Pilea gracilipes Killip

Region: Panama

Collector: Maxon 5426

U. S. Nat. Herb. 675809 **Genus** 1984

parietaria - 4

V - 3 ✓ BM - 1 ✓

B - 1 ✓ B - 1 ✓

K - 1 ✓

PLANTS OF MISSOURI

Vicinity of Creve Coeur Lake, St. Louis

No. WILLIAM PALMER, Collector May 25, 1904

G' - 2 ✓

Br - 1 ✓

SPECIMEN IN TYPE HERBARIUM

Pilea angustifolia Killip

Region: Costa Rica

Collector: Cook & Doyle 181

U. S. Nat. Herb. 473969 **Genus** 1984

hermanioides 2

Bo-1 ✓ Bru-1 ✓

B-3 ✓

K-1 ✓

K-2 ✓

SPECIMEN IN TYPE HERBARIUM

Pilea pallida Killip

Region: Panama

Collector: W.W. & H.E. Rowlee 376

U. S. Nat. Herb. 1036444 **Genus** 1984

microphylla – 1

V – 1 ✓ S – 1 ✓ P – 1 (32) ✓

V – 2 ✓ K – 1 ✓ B – 1 ✓

Br – 1 ✓ Bar – 1 ✓ B – 4 ✓

Anomala augusti.

Bo-1

SMITHSONIAN INSTITUTION

UNITED STATES NATIONAL HERBARIUM

CRYPTOGAMS OF THE JOHN DONNELL SMITH HERBARIUM

JOHN DONNELL SMITH, Collector.

Pitt. 6734

Bu - 2

hyalina - 32

V-1 K-1 B-3

Br-1 Bm-2²

G-1 P-2 (32)

standleyi - 31

pittieri 30

accuminata - 29

P-1

Br - 2

Bo - 1

Fasciata - 28

pterielada . 27

V-2

Auriculata 26

Br-2 K-1
B-4
Bo-1

Nummulariifolia - 25a

involucrata - 25

K-1

Puberceum - 24

V-1

V-2

Br-1

Br-2 2

G-1

G-4

Bo-2

K-1 2

Bm-2

Bm-4

P-2 ('32)

B-3

B-4

tuerckheimii - 2 3

Br. - 1

Br - 2

palida - 21

~~[illegible]~~

irrorata - 20

Bo - 2

K - 1

augustifolia - 19

K - 2

skutchii - 186

quercifolia - 18a

gracilipes - 18

V-3

K-1

Bm-3

B-2

dauciodora - 17

V - 2 G - 12

Br - 2 G - 4

K - 1

feguinotii

~~viaguana~~ - 16 b

V-4

Cornutis - cruciata - 16 a

V - 5

purulensis - 16

V-2 G-4

Br.-1

commanda - 15

donnell-smithiana - 14

K - 1
B - 4

Costaricensis - 13

K-1
B-3

caudata - 12

Chiriquina - 11

diversissima - 10a

pannamalana - 10

V - 2
Br. - 1

G - 4
Bo - 2
K - 2

B - 4

есвоборецка - 9

К-2

PLANTS OF VENEZUELA

No. 253 FRANCISCO TAMAYO, Collector August 1937.

tridentata - 8

Box - 3

PLANTS OF VENEZUELA

Piper

No. 287 FRANCISCO TAMAYO, Collector August 1937.

pleuronema - 7

Br-1 K-2

B-4

S-1

PLANTS OF VENEZUELA

Piper

No. 286 FRANCISCO TAMAYO, Collector August 1937.

senaripolia-6

G-1

Bo-2

K-2

SPECIMEN IN TYPE HERBARIUM

Pilea standleyi Killip

Region: Costa Rica

Collector: Standley 38697

U. S. Nat. Herb. 1229585 **Genus** 1984

riparia — V

Br-2 B-2

K-2

SPECIMEN IN TYPE HERBARIUM

Pilea chiapensis Killip

Region: Mexico

Collector: Rovirosa 938

U. S. Nat. Herb. 1207962 **Genus** 1984

Audiencia - 3

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Goenoeng Boender, northern slope of Mount Salak, Batavia province; altitude about 725 meters

No. WILLIAM PALMER / OWEN BRYANT } Collectors May, 1909

100

4-14

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Northwestern slopes of Mount Salak, above Goenoeng Boender, Batavia province; altitude 800-1800 meters

No. WILLIAM PALMER
OWEN BRYANT } Collectors May, 1909

100

Bo - 1 ✓

PLANTS OF MISSOURI

Vicinity of Creve Coeur Lake, St. Louis

No. WILLIAM PALMER, Collector May 25, 1904

99

3-11

DEPOSITED BY THE
UNIVERSITY OF CALIFORNIA

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Northwestern slopes of Mount Salak, above Goenoeng Boender, Batavia province; altitude 800-1800 meters

No. WILLIAM PALMER
OWEN BRYANT } Collectors May, 1909

99

Br. - 2 V

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Northwestern slopes of Mount Salak, above Goenoeng Boender, Batavia province; altitude 800-1800 meters

No. WILLIAM PALMER / OWEN BRYANT } Collectors May, 1909

101

Br. - 2

PLANTS OF HONGKONG

OWEN BRYANT EXPEDITION, 1909–10

No.

WILLIAM PALMER
OWEN BRYANT
} Collectors

February, 1909

101

9-24

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Sindanglaia, Mount Gedé, Preanger province; altitude about 1100 meters

No. WILLIAM PALMER, OWEN BRYANT } Collectors January, 1910

١٥١

٧-٦

PLANTS OF HONGKONG

OWEN BRYANT EXPEDITION, 1909–10

No.

WILLIAM PALMER
OWEN BRYANT } Collectors

February, 1909

102

3-2 V

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Goenoeng Boender, northern slope of Mount Salak, Batavia province; altitude about 725 meters

No. WILLIAM PALMER / OWEN BRYANT } Collectors May, 1909

102

Br. 2 V

PLANTS OF HONGKONG

OWEN BRYANT EXPEDITION, 1909–10

No.

WILLIAM PALMER
OWEN BRYANT } Collectors

February, 1909

103

S-2 ✓

S-3 ✓

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Northwestern slopes of Mount Salak, above Goenoeng Boender, Batavia province; altitude 800-1800 meters

No. WILLIAM PALMER
OWEN BRYANT } Collectors May, 1909

106

Bo - B

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Northwestern slopes of Mount Salak, above Goenoeng Boender, Batavia province; altitude 800-1800 meters

No. WILLIAM PALMER
OWEN BRYANT } Collectors May, 1909

107

B0 - 2

Myriocarpa yzabalensis

Pittier (or Tonduz) 7604 (Brux):

" 3881 (Bet. Rio la Unión o

el Convento) (Brux)

" or Bioley 7045 (Brux)

" [or Tonduz] 8531 (Brux)

" " " 4826 "

Tonduz 8307 (Turrialba) "

Prof. Alfred C. Burrill, S

State Museum,

TGH
18F21 Jefferson City, Mo.

Pouzolzia guatemalana
(Blume) Wedd.

Salinas Bay, Pacific coast,
Fonduz 2868 (Bruce).

Isidor M. Chamelin, SM
80 Strong St.,
CNF Bronx,
29 New York, N. Y.

Urt.

~~Phenax 18350 To give n~~

Pilea 18353 To look up

a report (from Gray List)

Herbert Press Cooper,
Agronomy Division,
Clemson Agricultural College,
Clemson College, S. Car.

S

OGC
22:31

turobheimii

Turobheim II. 1835 (Brun)

Miss Merna Miller, S

Stout Institute,

FGN
29 Menomonie, Wis.

pallida

Boruca, 1200 m, Pittier 6734 (Brump)

Rio Navarrito, 1400 m " 2432 "

Golfito, Golfo Dulce, " 9902 "

Dr. Edward J. Menge,

Marquette University,

FHI
24 Milwaukee, Wis.

S

pubescens

Fuchsheim II. 1264 (Brux)

Prof. George Eugene Marvin,
Department of Economic Entomology,
University of Wisconsin,
Madison, Wis.

S
F
28

pterilada

Fonding 9252 (Brux)

Steven J. Martin, S

310 Huntington Court,

FN
28 Madison, Wis.

acuminata

C.P.: Carrillo, Pittier 5-77

(Pitt. & Durand; Brenes)

Prof. William S. Marshall, SM

139 E. Gilman St.,

F

11F15 Madison, Wis.

auriculata

Vara Blanca de Sarapiquí,

Shutch 3186 (US).

E. S. McDonough,
Department of Botany,
Marquette University,
Milwaukee, Wis.

S

GCF
31

gracilipes

alto de Roble, 2000 m, Pitt. 242
(Brieg)

Jablaza, 1800 m, Pitt. 7927
(Brieg)

Charles Pugsley Lounsbury, S
2 % James A. Lounsbury,
F 844 North 12th St.,
02F14 Milwaukee, Wis.

augustifolia

Costa Rica: Endrés 174 (V).

Prof. B. D. Leith, S

2545 Van Hise Ave.,

OGF
29 Madison, Wis.

Urtica nicaraguensis

Irazú, 2000 m. Lonchuy

4222

(Brux)

Bill H. Wilford,
School of Forestry and Conservation,
University of Michigan,
Ann Arbor, Mich.

S
OFG
32

Urtica ~~stachydis~~
stachyoides

Veracruz, Coscomatepec, Matuda
S-82 (Mich).

" Maltrata, Matuda S-81
(Mich)

Fred S. Darling,
Box 2918,
C Station H,
28 Columbus, Ohio.

SM

Laportea mexicana

Valley de Oaxaca, 1500 m.

Conzatti 5231 (Mich)

Dr. C. N. Wenger,

420 S. Fourth Ave.,

HIG
31

Ann Arbor, Mich.

Boehmeria aspera

Jordy (Inst Phys. 11543; Brux)

Merrill M. Darley,
Dept. of Zoology and Entomology,
Ohio State University,
Columbus, Ohio.

SM

FGC
31

Boehmeria caudata

Ocana, Schlaim (?) (Huc)

El Cauca: El Tambo, 1700 m.

Sneiderus 581 (5).

A. Laurence Curl,
Department of Chemistry,
Miami University,
Oxford, Ohio.

SM

C
32

Boehmeria arbuscula

Quindio, 2200m, Triana

in 1853 (HWC)

Dr. Glenn E. Cullen, S
Pediatric Research Foundation,
NC Children's Hospital,
24F26 Cincinnati, Ohio.

Urera alceifolia

Costa Rica: Santa Maria de Dota,
1300 m, Pittier 2266 (Brux).

Isâbe, Talamanca, 200 m.
Tonduy 9523 (Brux).

Dr. Wm. Hale Charch, SM

Du Pont Rayon Company,

C

28 Buffalo, N. Y.

Urera elata

Costa Rica: Matina, 20 m., Pittier

10317 (Burger)

James E. Chapman, S

203 Williams St.,

OEC

22 Ithaca, N. Y.

Urera caracasana var. tomentosa

Brit. Hond. Shrub, 3-4 m high.

~~Co~~ El Cayo Dist: Coburne Ridge,

Lundell 6475 (Mich.)

"cow-itch"

SM

Dr. Cameron D. Day,

214 E. Fourth St.,

FN
29

Fulton, Mo.

Phenax rugosus

Bogota, 2670 m. Triana in 1856
(HUC)

Quindio, 2100 m., Triana in 1854
(HUC)

Dr. Winterton C. Curtis, S

210 Westmount Ave.,

F

03F05 Columbia, Mo.

Phenax angustifolius

Colombia, Triana in 1852 (Herb)

Dr. Zola Katharine Cooper, S
Barnard Free Skin & Cancer Hospital,
F Washington and Theresa Sts.,
30 Saint Louis, Mo.

Phenax hirtus

Bol: Incachaca, Cochabamba,
2200 m.
Steinbach 8876 (5),

Matthew E. Carroll, SM

Lincoln High School,

FNC 19th St. and Tracy Ave.,

31 Kansas City, Mo.

Phenax hirtus

Col.: El Cauca: Chisquio, near El Tambo, 1800 m, Smith 582 (S).

Pasto, 2000 m, Triana in 1853 (HMC)

Thomas K. Chamberlain,

& S. Glenwood Ave.,

Columbia, Mo.

S

F
29

Myriocarpa stipitata

Antioquia: Triana in 1852 (Husc)

Prof. Edgar Allen,
Department of Anatomy,
FN University of Missouri,
21F25 Columbia, Mo.

S

Urera simplex

Salto de Tequendama, 2500 m,
May, 1856, Triana (HNC,
Type coll.)

Joseph Caspe, SM

3150 Rochambeau Ave.,

CN
29 New York, N. Y.

~~to~~ Ubera caracasana var. tomentosa
Cuid.
~~Bo~~ La Mesa, 1300 m, Tuaira
in 1855 (HMC).

Louis Carson, SM

73 West 68th St.,

MBC
28 New York, N. Y.

Urera caracasana (type)

Cauca, 1000 m, Triana in 1853 (HNC)

Ubalá, 1200 m, Triana in 1855 (HNC)

James E. Wildish, S

115 N. Lawn Ave.,

CBA
25 Kansas City, Mo.

Urera caracasana

(form)

coarser teeth, ± glabrescent

Boyaca: El Humbo, 4000 ft.,

Lawrance 521 (S).

Fred Weinberg,

1675 Webb Ave.,

B
30 Detroit, Mich.

S

Urera caracasana (Jacq.) Gaud.

Bol.: El Beni: Trinidad, Mission
Guarayos, 25 dm, Werdermann
25-5-8 (S).

Eli White, SM

2484 Edison Ave.,

MB
28 Detroit, Mich.

Urera caracasana (four)
aff typical but leaves not
at all cordate at base; ♀ cyme
short; teeth small; affinised-pilose
on n. & v. branch
Boyaca: Chapon, 5000 ft,
Lawrance 359 (S).

Prof. Marcus L. Ward, S

1308 Cambridge Road,

BC
24 Ann Arbor, Mich.

Urera caracasana (form)

like Lawrance no. ~~376~~ 359, but glabrescent

Boyaca: Chapon, 3,400 ft. Lawrance

376 (S)

Ralph H. Upson, SM

1407 Lincoln Ave.,

BMQ
24 Ann Arbor, Mich.

Boehmeria ulmifolia

Guat: Alta Vera pay: Cubilguitz, 350 m, Turcbhan II. 1473 (Brux).

R. Howard Struble, S

4481 Sheridan Ave.,

IBC
21 Detroit, Mich.

Conanthus parviflorus Greenm.

Erythea, **7**: 117. 1899.—Oregon.

(24)

Borrow from Berlin when returning Bomarea:

all R. & P. sheets of Pilea punctata, P. hirsuta, & P. pavonii.

Pilea Bur. - 1

hernandes

CR JDS 6234

micropteyela

(1) CR Polakowsky 61, 416

(4) panelana

CR JDS 5948

✓ lindeniana Bog. Juan #577

✓ mutans - Poepp. 1565, Orsa and now

call it.

✓ pallax Spruce 6106

✓ " - Standley 11054

✓ strigosa Berg 687, Benoist. Standley

Nov. 1910.

✓ leptophylla Hook & Arn 1223; Klotzsch 740

✓ dauciid. Rusby 1483 Berg 1784

" Standley 11053 Sodiro

elegans elliptica Valdivia: Conrad,

Funckiel (Hugo) 68; (pan loc),

Reed (EC) 259. Valdivia: Valenzuela

92., Techeler (W) 409.

Puerto Montt Phil. in 1868 (by the

Grisp) Cheilop, Cuming 40

Pilea Bar-2

Guaguata Poepp. 2088
Stevopodon Barbacoas, type 8 om. act.
flumea Priglmk Jam. 789
serratifo. Jamaica 834 Prahm
fasciata H. 888 Novita, Choco
act. 170 m
Here is sheet of Urtica cyanea Rop
med. such as I planted in Madrid,
with dense impl.
Pubescens Pitt. 328 Guat.
" Tuerckheim II, 1264
" Spruce 4405 Tarap.
stipitata Wurth. 2031
cumulatif. type C. near tuna
Heyde & Lux 3148 Guat = what, det.
pumila
Chyalina; Seemann 276 Panama
Barry 2126
to micranth. Dale 396
Polakowsky 450
spruceana Pearce 284, Pozuzo
Tarap. Spruce 4376
RS Williams 199

Pilea - Bm - 3

augusta - Jamaica 838, Prichard
"cordifolia" Hook f. from India:
domecloniana DOS 467
elliptica cg. 1862, Valdes. Bridges 741
fleccina cg A 927
filipes Rusby 1288
gracilipes PES 39234
" 49715
C 16
Polakowsky 150
macrophylla name here preoccupied
ovo spec.; dual.? need!
pumila, Jamaica II 1707
rhomboif. Hook 1446
~~serrata~~ serrata β Hook 1430
tridentata Jamaica II 2011
elegans La Machia, Read in 1872
Valdes. Bridges 742
moelleri Sanborgiana, Ernst 1705
goldmani - Dos Agenados, Ernst 1706
(of eugeniana but K if 3-nerved
Dos very unequal
lindeniana - Moritz 1293, Berg.
parietaria Ernst 1164 (Berg)
lindeniana Linden 1994 458 Colombia. cf A 322

Pulex Bm - 4

pubescens

CC 14409 Brevea San Ramon

8a

Pilea K-1

✓ microphylla H.B.K. 1460

✓ serpyllacea Pohl 6888

✓ lindeniana Gaud. Col.

✓ ✓ Linden 799 ; Tr. 236

✓ ✓ Spruce 6106

6107 van glaan

✓ ✓ Gaud. Moab 3987

✓ ✓ centradenia Seem. 1099

✓ ✓ anomala Wedd. 1104 Sonata

✓ ✓ Bang 2490, 894, Buchtl. 3110

✓ ✓ Spruce Ec.

✓ ✓ Bang 687

✓ ✓ Lechleriana Mc Leod

✓ ✓ Mendoza Jamaica, 789 Richard

✓ ✓ microphylla (~~Hamboldtii~~), Cuatro Jerónimo

Form 1 (west, suberecta) Form 2 common

✓ ✓ Jerónimo Cuatro. ✓ ✓ Andre 1C 1682

✓ ✓ Andre 2082 " 1487

✓ ✓ Marginata Mocino 5086

✓ ✓ Lamarckiana " 5910

✓ ✓ latif. Schlim 701

✓ ✓ Wendlandiana Moritz 366

✓ ✓ ovalifolia Spruce 4154

Prêa K-2

✓ ~~molucrata~~ Hooker 256 Saila

✓ " Pretium 11863

✓ stenopoda Wieth. 2031

✓ microcala type

~~angustifolia~~

✓ cuprea Lehm 4475

✓ cupulifolia Rusby 1482

✓ cordifolia type

✓ delicatula "

✓ muntafiana Macb 3126

✓ dombeya Macb 3289

✓ "pulegii." " 3650

✓ punctata Pol(6673

✓ rhombifolia. type

✓ " " did Rusby ever use this name? HHSm 1222 (herb)

✓ no det. time Mah

✓ pubescrata HHSm 1430.

✓ "pubilotala Buchtz 383

"tamensis" Ule 6508 Tarapoto

✓ bernicosa Macb 5201

✓ ~~de~~ involucrata HHSm 1445

✓ serpyllacea Andre 4440

Chuquiribamba Ec

Pilea - 15

gollmeri = cruegeana which is
3-ranked. Cf Colombian thing
I have placed there and
transfer to somewhere

Pilea Bur - 1

Lancrod. n. sp. Peru 1781

nivalis Ernst 1106

elliptica Hugo Gunckel 68. Conrad

C.g. 1862

E. C. Reed 25

Vaccinea - Phil. 28

Buiges 741

Fechlen 409

Edmund

Calea - Berlin
Paracaulexta - Morita Cuba
P. fruticata = pubescens (?) Mex

Types

P. cuprea
Related to P. ornatifolia -, stam.
lvs ovate-ob; cyn. minute
punctate, incons. above; lvs on but much
coarser teeth lvs more lanceolate

P. glauca Ekm
up. surf. glaus, cyn minute, brown, joint
und. " glauc " vermilion, very joint
prostrately bearing along rocks, Pinos; stem
punctate. Sodiro 153/27a
herrerae - lvs in 3's or 4's, without cyn.
above, a few coarse hairs beneath
lvs. generally equal less than 1 cm x 0.5 cm
sharply acute above mid.; stam b-r
0.5 cm l.; fl. pur purplish; globose
heads, 8-12 fl. in pist. Cuzco, Nov. 1922
Herrera 6 (let Ki. Bot. Gard.
pusilla ok - diff from orbic marcgr.

Pilea - Brit. Hon.

P. mutans - Poepp 15

P. fallax Spruce 6106 ok with myolect
this ks are only up to 1.5 x 1 cm. 24

P. centradenioides destinct from what I
called it. Densely covered (ks above)
with linear cepal. 20

variegata ok as I had it. 21

microdala ok

---

flexuosa = ~~ks much more recurved ks~~
ks ± ~~longer~~ undulate at base, proportionally
broader, ~~ks~~ ks less diff. set. 2 kinds,
very close to my brazilian ks. 19

serrulatifolia 36
with much smaller involucral bracts; ks
dif.

sessiliflora - Sw. Type seen; not =
anything I have from Colomb.

fasciata densely ferruginous-tom.
unlike anything.

Williams 199 ok with typ Paraguayana.

Pilea - Paris

Old check 10/24/31

29 P. longipes Lieben = P. accumulata

P. Sheet of Pavonia in our herb. is evidently

29 part of type. Exactly same.

Mach 3650 not pulegifolia. The type has lvs. less than 1 cm. x 5 mm.; pubescence more appressed; whole pl. & a slighter, less coleoncy.

P. thymifolia

On sheet of form with larger lvs, Wedd says "P. suberenata Wedd, ined. forma varietas P. globosae" - on January 1856. It is a form of P. glabra

K-7373 is not P. trichosaneta.

Type is a very slender plant with thin membranous lvs, conspicuous white cyst. elevated on upper surface. Is pinnatinerved, not hisp.

Urtica - Paris

U. ballotaefolia var β (type) is just like the one of mine I have named. It should be raised to specific rank. Type Gaudot in 1844

U. chamaedryoides - variable; Standley; plant etc

1932 Piba Pl = plicata
P-1

alaternifolia

Gould. type, not very hairy, more like
form of panamensis than lindenii.
Ser. Shaped like K 08191119.

hyalina

Arundi Tolima, Dr. 878.

Pan, Gay

unpaired

Spruce 4434, Tarapoto

lindeniana (all sheets very hairy)

Dr.

Bogot. Dr. 877, 2236 Leguminosae

Linden 799; Bog. Gould.

magnifolia

Pappp 1058

pteranoides

Curacao Curran & Hahn 3

pulcherrima

Guaranda Bodegas, Remy in 1856

Jurubeb. II 1312

Curacao, Boldingh 5648 (5698?)

pulverulenta

Dr. 344 in loc. Chimiel. Dr. 879

Tolima, Goudot; Popayan Ho B

Pilea P-2

Nectaria

Pauls. type, or an small-leaved thing

Doub. is same, the larger leaves &
proportionately smaller both; expal. =
Pacyp. type

~~Sagaciana~~

~~Put Triana 492 here, with?~~

✓ peroroii type? Pat

✓ pepperiana " "

pubescens?

Trinch 974, 753 → or 415 ?

" ~~or pumila~~ Spruce 4455

Taraporia

pulegifolia Doub. type

Put with lvs. in 4's; stem densely
tomentellous, especly as in
Maeder. 3650; lvs up to 6 x 4 mm,
yellow stock expt. above,
white beyst. beh., all elevated,
quite unlike Maeder.

3?

hyalina JDS 3142

punctata Jaeg, Bogpl. lvs. cancate, large-
toothed. Ors on 4 leaves rt.

✓ Struzoa Matheus 2031

parietaria JDS 1270

Cyl

Pilea P-3

"thymifolia"

Bonpl. also in Berol Herb. Almagro

o Paste Labelled "serpyllacea".

= thymif. as I have made this

Colomb o Ec. thingo. Have also

Fr. 898 Medellin. Cf. if this

form is not in Kunth.) Galeotti

7084, Veracruz. Yet subcrenate

type atrein scarcely has sessile

heads!

(a)

parviculenta Fernald 145

trichosaurites very diffs. slender, fewer

dept. than eulam, less clam

stipules small (1 mm.) but persistent!

goes with less. in 4's.

serpyllacea & thymifolia are identical in

Humb. Herb., neither microphylla.

floribunda, large infl. but otherwise

same. Perhaps one that name, like as

w & present maybe keep dovetail.

Callitrichoides Caripe, Venez?. = microph

Type Humb Herb.

Herb. Jeps.

Parietaria serpyllifolia type in quite

diff. from microphylla & serpyllacea

Less sparingly the definitely ciliate,

Piper P-4 (Herb Jesup)

serpyllifolia; nerves obscure, all ascending.
erect. slender, crispic. above & ± parallel
to midnerve on margin. Poiret says
S. ~~boniq~~. marginepuncti ped. elongate.
ovs. ub to 6 x 3 mm
fuleggf. Dom. Eyde

multiplica (type Jesup coll. Peru)
not just like anomala ((K & S 25913).
but probably close enough to
other sheets to let it stand as
in MS. Not citriodora. Only.
globuosa

✓ thymifolia ≠ Jussieu, Peru. ~~H~~ ok
"Indans" Triana 492. Don't know where
✓ to put it. = nov. spec. 3/14/33

Pilea B-1

microphylla

CA

~~Ho~~ JPS 4065, 1670, 3143

CA (1)

Cartago, Polakowsky 416

61

✓ HoB type ? of U. callitrichoides

= very good match.

CA ✓ Seler 2494 Guat.

thymifolia

✓ R. & P. - no loc.

✓ Pork 6858

(4) parietaria

CR Turrialba 1270

✓ acuminata

Pork 7672

~~Ho~~

✓ rupestris Pork 8786

✓ diversif. R. & P. ~~Ruiz~~ TC

✓ ceplophylla Hahn 1223

✓ ellipsica

Concepcion, Budgos (by J. P. Budgos ?)

Gay no loc.

Rio Maipo, Reiche in 1896

Pangipulli Hollermayer 511

Pilea B-2

elegans

Gay

In Mooka, Peul. "mellatoumdeu

N.V. "kuvilu"

Melastomoides" ~~Schum~~ Urban

Macbr. Trans. Ch. to

Urtica Melastomoides Miki ?:

to Left spec.: "Differt foliis majoribus

(1) longius petiolatis, flores masculos

haud vidi) Ephemb Bompl ♀

Right Sp.

"Pilea muscosa Weddl. Urtica

(2) Melastomoides Miki, Cel. Mus. DD:

Ep Herb Humboldt. ♂

1 = "Mulleph. of Central Cad. 2: Enclin. Bog.

thuja; probal. acaule,

5 rupparia TC

cyathocalyx Put in at 90 a,

densely hirsute ~~both~~ throughout T

very

achenes ± 0.6 mm very dense variant

lvs triplic. of P. Gut. ??

gracilipes

Polakowsky 150 - CR.

JA 5450

18

Pinea B-3

~~Balba~~

pubescens
Polahonsky 62 Cañago
Brade 2108, S. Jose CR.

2V

(CR) JPS Zurch 974?, 953
Selen 2516 Zuat Escuint:
Spruce 4405 (Tarap).

✓ ✓ Muricata TC
hygabrica ✓ Barry 2126
Pretori 1402

3V

Rojas 216 Retalhuleu
Hoffmann 244 S. Jose.
Polahonsky 450 Cañago

✓ Spruceana
Spruce 4376

✓ ornithopoda TC
✓ deltoidea TC
✓ crucifolia TC
✓ verrucosa TC

13 colanensis
JPS 5952

"deltoidea x hermaini
JPS 6234 (note hairs)

(CR) (P)

Pilea B-4

pansamalana

14 Seler 2854 (f. robusta) = dussii ?

" 7983 ? "

10 " 939

pubescens

(Carl)

24 CR Hoffmann 714 Aguacate

" " 681 "

microphylla

1 Trel CR 14688 Fruit

CR

Cucullata Hoffmann 40 : Volcan de Barba

7b

pleurantha

9 " 754

Urera " 1243

√ caracasana. TC.

ulei. TC

√ daguensis Trian 889

√ peruviana " 888

√ mutisiana Sod. 153/27 Pilaton (= floribunda)

√ plectrodon Tr. 892

√ ludensii Tr. 877

√ Cernua. Hitchcock 1222, P. ✓ ✓

Ohrgelia " 1447, 1448, Pil. 12166

Pilea B-5

"punctifera" "anomala"

✓ Cochab.: Incachaca, Steinb. 5812, 5798

Sp.? pubescens

Jenman. 4844, Mannaioho. fm

of pubesc.; shape of leaves like

cerabocalyx; exct. not like opuscana

✓ basalenaina

Woytk Santiag. Jenman 4667, 4603

✓ micropleyl Jenm 4742 pto Melendez

✓ filicicina

Jenman. 3721, Napo. ~~fm~~ This is in

surely oic. Exact match.

✓ Hygrophila Ramonah 5639, Cajam:

✓ Callacate. Cajam: Hualgayoc.

✓ Rain. 2209

✓ nutans Rain. 9290 Junin: ~~to~~ Pasla.

✓ nv = "chia - chia"

~~elliptica~~

Pichis. Rep. 1688 Pilea mmm!

✓ lindeniana Tessmann. Troel 3737

✓ Mentziana " " 3738

✓ micropleyl: Buga, Dryander (E). 94

✓ Lamarcker Lima: Huipaca, Rain ⊙ 285

Pilea B,-6

? subsp Rauh. 9687. (Puno)

. aff. hydrocotyleifolia Bonpl. ex!

Pulan

Puno: Ollachea, Rauh. 9649

Pilea

Pilea fetrostais

. Cajan: Tambillo, Rauh. 6039

daucifolia

Junin: Acobamba, Rauh. 2800

citrifolia Chanchamayo, Rauh. 2348

ssp = Macbr. 3650, 96. Killip. Cajam:

Hualgayoc, 7200 ft., Rauh. 7092

Pica Ca K-1

Micrioph. JDS 1670

Chemian. JDS 62 34

parietaria Lamb. 256 CR Corcavas
Isa

dancoid. JDS 3146

pub. JDS 753, 974

CR. Barrera 1445-9 San Ramón

microlaena JDS 4933

pub. Lambert K 22 Las Corcovas

" Roaring Creek Brit. Mond.,

Leonard 330

Cochscomb Mts, Brit. Mond. Schlieb

518

annulata Stancel. JS 2099

? "pumila" Hitchc & Lam 3148

hygalina rhomin 5473, JDS 3142

CR Endres 253

Mic. Tate (R.) 396.

donnell-smithii Tond 7467

corlaniacea Cooper 5952

gracilipes Stancel. 51366

minuta JDS 2751

Guat. Mozatenango, Bernoulli
2576

& Cario 2576

rilea ca 15 - 2

10 ~~S~~ panamensis ; JOS 939

" Standl. 44742

7 pleuronura Lemée 754

2-2 { punctum JOS 3147

" CR Endres 172, 200

5 ripana JOS 1040

6 Lemaire JOS 3145

9 sodocoph. - 7983

14 angustifolia CR Endres 174

(V) hernandes Seeman 259 Chagres

Hayes 204 Panama Seeman

285 Panama

~~Hieracium~~ - Sect. 1

1935

Ca Pilosella

dauricodora Hegetschw. 3146

Fquadrans " 3147

dauc. Zurich II 1980

6 vulgare. H. of K. 3145

24 peleteanum Britt. Cochrocomplex,

Schleich 518

3 brachiatum Zund. 17948 San Francisco

de Guadelupe, C R

(4) parelatum Zund 17950 San Juan CR

(1) microphyllum. Zurich II 9312; BG. Forel Hom

(9) pleurocoma Zurich II 2011 Schleich 1092.

S.G. Pilosella

(87) Ule 6844, det cerabocc. = prob.

(99) incolucc. Fendl. 1244

(5) nerterioides Mac. 4395 Oleas Pilosa

(33) leptophyl. Nels 1223

(50) obliqua - Bachl. 85

(21) delicatula - Mach 4400

(24) diversif. Mach. 3984

(53) ecliptica ? (small rad ligulate form)

Tennco,

Valdivi. Buchl. in 1844

✓ Gray

~~garyan~~ ~~ecliptica~~

~~Clapham~~

1935

~~Boehmeria~~

Pilea - Gen. - 2

(63) bambusifolia - Hook. & Arn. 1446

(2) ~~Boehmeria~~ ~~trichocarpa~~ - Poepp. 10-65-

(14) cuspidata - K05160-4

(10) macropoda : Poepp. 3045-

(1) microp. Fenzl. 1240; Mart. 3101

Mart. 3690; Ule 6657

(28) ~~Boehmeria~~ subcomplex. Ule 6588 Pitt. 11972

" 9555-1

(6) nitida : Pavon

(48) " orbiculata " Mart 3289

(8) " pavoniana " Gaud. 203 = rhomboidea

(102) ~~Boehmeria~~ spruceana 4465-V-

(7) apiculata Hook. & Arn. 1430

(10) spruceana Ule 6843

(17) ~~Boehmeria~~ sublobata Bucht. an

(3) serpyllacea Mart 4087

" urerifolia " Harg. 2305. Rio Tocoraui

(45) ~~Boehmeria~~ ~~Boehmeria~~, cf. cyanofera

" Bucht 3751 = aborea

(21) uaupensis Ic-816043

(8) rhomboidea Jahn 11127

(103) hyalina - Hook & Arn 1447

(66) ~~Boehmeria~~ multiflora Mand. 1104

(71) punctata Weberb. 4307

} check, & send extra sheets if wanting to work.

Pilea - Sect - 3 - ?

dauc. - Sect. 329; Pitt. 4854 1935

Rhombea Sect. 248; Pitt 10448

quipaip.' Tsoum. 3721, close to

filicaulis which I

named it

Eugenia Pitt. 12166

filipes - Maud. 1103, seems this

rather than dauc.

Barry 2374 = ? wrong off

Eugenia Buchtien ovata

serrulacea Maudon 1105

cerinadenioides Laurance 6552

(Borrow)

Bank. Clay 2870 Queen

aeruginellac. &c: Rio Ambato,

Heinrichs (Erica) 32.

~~pubescens Ule 9022~~

serrulif. Jam. 834

picta Krug. ~~24~~ (type coel.; Mock Pk 27850)

= macrophylla; teeth very fine. Juv.

subsessilis

lindeniana - Jurien 799

platipoda Schlim 701.

plerana Jamaica, Anth

1935

Prieg - Sen. - 4

4 dancwid - Jamm 745

Scleroph. Fundo 1247

90 succulenta Fmuh 145

100 Cerabocalyx Poepp 3046

17 dancwid Jmuh II 1980

---

16 punctum " II 1207

pansamalana " II 1296

10 puberaceus ? " II 1264

24

Pilea - Briz - 1

(1) Cucciophylla Tonk. 9255 Skutch

(24) "Chamaedryi" " H. 93. Cubilguitz,
Guat.

(5-54) Leptophylla " Hbm 1223
Tonk. 1247

(5-54) " "

(5-54) Pendulifolia" Stm 4434 Jam. = ?

(23) Turckheimii" Tonk II 1830

(23) (1b) Punctulata " II 1707

(53) Setacea Tonk. 409. Valdivia: Valeriano
Pitt. 1402, San Jose
8173 - Rio Tres
4654 Boruca
Tonk 1324. Desamparados
" 7179 San José
Pitt. 7145 San Fran. de
Guad.

Tonk 8270 Turrialba
(alt. 1500 m)

(1) Viburna Tonk II 1312
Spruce 4028

(1) (10) Paucinervia Tonk II 1296

Pleuroneura " II 2011

(7)

Pilea - Brue - 2.

Pilea Fendl. 2541.

Fendl 8854 San J

Spruce 6405

Hab

Angobola Hunt. Type seen

Angania Funch II 1708

Apicularia Hitch 1430

Apiocarpa Spruce 4316

Cucurbeli Funch 2922

Dauciodora Funchk. II 1480.

Decumata Acta Univ., Funch

II 1262 or 7 6073 (error)

Involucrata Fendl. 1244

Juncicola - see Cut.-Nic-h.

Pubes. Fendl. 11539

Sericea Funch 799 Tuyle

Pilea - Sa - Boiss - 1

1935

filipes -
Bang 2374 Capitata Cyanbifera
Ca.

Macrom. Prugla 8 N 2

Anomala angustifolia " Urtica
angustifolia H. E. Parry " = Sonn.

anomala JDS 5950

Urticodora - Par. Type C.

Urabocaeya tenuis and Amer. Weed Report

Urbain H. Esp. Hab Par Urtica urbain 3046 H.E."

U conspicua

leptophylla - pilosula + Fendl. 1247 6
Venez 790 Mitch same sheet.
= Same thing.

hermanni JDS 6234
dancodon Hab Par. Peru "Urt. dancodon"
in Par. Herb - Type -

elegans Eig
Cayapana Wedd. Chile; Fam (Type)
gaudis v. tripliniensis
" pro. " Barbacoas, Tuquerres. Prain
also Choco
ped. hastatum, Kor. = j

1935

Ribes = Botrios 2

globosa "Lehm. ~~Pers~~ Pers" R&P - Peru

hirsuta - 2 sheets "Herb. Pavon

Nueva España" but are probably Peru!

(10?) divaricata JDS 2751

(9) colifolia Sodiro 701

(7) andicola Jurdan 787

(A) mutisiana Humb. Herb Pav. Bonp.

(9) parviflora JDS 930

(M) parvifolia 3 sheets, 1 Ulbrich Cajamarca

del Peru Cult Peru

Herb. Pavon

(2) pubesc. Tovar 8-854

(1b) pulegifolia Jelski

(2) punctata. 3147 JDS

(4) serrata. 3141

? Pitt. 6734

Prlea - V - 1 + Cat.

hygalina - Salzmann (type)
Boch. guat. Buchholz 1272 ms Aguacate
type (Mexico ? pl. 1
" oblij. Poepp = Pongo obl. Poepp. 2032
marginata (Mexico ? pl.)

Prlea acum - ~~Chiapas~~ ?
24 "Chiapas" Jurich. ~~II~~ 1264, ~~II. 43~~
(50) otinipora - Barq 687
(4) dorsc. Spruce 6047, Chis, not Jamaica
(2) elegans (long bod. / Valdivia ?666. Mint.
elliptica - Bridges, Chile Buch. ? 1899
Valdiv.
(53) Valdiv. Philippi
+ Mts. Valenzuela, Vald.
Febles 409.
Chile Fry, Cumg.

(1) microphylla - Cuchero, Poepp. ? 1800
hygalina - Polakowsky 450. Cartago CR.
Fonday 1798
C 32 Both these names - bad ?
verbasc = another sp.

(51) impar. Spruce 4434
(1) Linden Linden 797
(18) marginata Cuchero, Peru, Poepp D 1055
Waldeck, 28 miles from
Pto Limon, Cartago CR. 1666

Piper - V-2

(1) Miconia. Caracas, Ernst in 1878

(1) CR Polakowsky 416, Corozal

" 61

Tonduz 1795 !

(67) ? Poepp. 1032 - brownish. More in multiflora cover

? Poepp. 1552 in part ! ? More in mountains.

(V) Clusiaceae - Cuchero, Poepp. - 1552 in part

(22) Mutamba Poepp. 1565. - Cuchero

(10) C. paupanal. Turrh. II 1296

(27) C. plericlada - brown !

C. verbascens Tonduy 8854, 11537,

Brenes 14459 San Ramon CR

(24) (16) C. punctulosa Turrh. II 1707

(19) ? Poepp. 1260 brownish - one under punctata

C. laucidora Turrh. II 1980

(17) Meryllacea - Cascapi, Peru, Poepp. 1381

(3) Col. - Karst. ; Mandon 1005 ; Taquecala, Bol.

(45) Cordobensis ~~Cordobensis~~ Rio Jacorani, Herzog 2307

"verrucosa" - on Hand. Mayo. Sp. from China; did Turcz. this name ?

Prlea - V - 3

C

(4) parietaria - Tonkin 17950

(59) adanc. Manton ~~1124~~ 1124, 1103

(88) pulchel. - Manton 1104 - Sarata.

Bang 894

(57) pilifera " 1788

(45) cymbifolia f. " 2374

(56) jamesoniana Tunquelen Spruce 6106
M

(20) fallax " " " 6106 M

" " " 6107, Gent

this has hairy stem + a few hairs on leaves!

(101) spruceana Spruce 4376 (Exp)

of P. pubescens montana f. 153 DC Prodr.

Fendl. - Venez. Did I accept previously?

(81) ~~goudotii~~ - Chundio, Canal.

~~pulchella~~

~~crenulata~~ " - Jamaica - surely accepted

dif. from globosa

peduncles much dev. here.

(3)

(50) stiposa - Cuchero, Poeppl.

~~subsessilis Poepp~~

gracilipes Vole. Trazu, Confodonti 348.

15

C 1614

Pilea - V - 4. fractisdecid.

P. riaguana Cuf. nov. sp.

Pl. glab., thoroughout, 50 cm or more high;
vel. 4-7 cm l., lios subeq. o similiter, 7-14 × 2.5 - 4.5
cm, ovate v ovate-lanceolate, cuneate
cuneate-ornate, long-acumin.,
lat. nerves reaching ¾ base of tip,
triplinerved; infl. ♂ paniculate,
axillary, < pet., thin fls. pedicellate,
in clusters, seg. 4 rotate; ♀ borne in
same axils as ♂, ♂ similar shape,
slightly shorter, fls. sessile;
seg. 3, 1 twice as long as others; achen
about 0.8 mm.

Vol. Prov. Cagayan, 2300 m, May 26, 1930,
G. Cuf. Edwards 351 (type).

C 16a

Pilea - V - 5

P. cornuto - cucullata Cuf.

Pt. stem repent at base; pl. glab. thinnish, without any cystoliths; lea = o similar, pet 3-5 mm, filiform; los ovate, 0.8 to 1.3 cm long, 4-7 mm wide, acuminate, 3-nerved, veins reaching to upper acute at both ends, third; pl. monoicous, ♂ ped. filif, 1.5 cm, infl cymose, 7-8 cm wide, the segs. with fil. tips 0.5 mm l. borne at upper apils. ♀ at same apils. ped. filif. 1 cm l., infl. same shape as ♂, cyme unipaired, 1 twice as long.

Vol. Trogn, 2500 m, 5/24/30, Cerro de Santa Rosa type.

Much like decurrens but no cyst. les. narrowed at base

Plumas Co. 7/25/52

Pilea ~~###~~ Er (& look up)
cordifolia: is there an earlier
✓ one of the-f. from Cuba? See
Kew notes.

absimifolia
✓ Decide whether not sep. from
✓ fruticosa; see P-1. Correct Det.
under "".
rhomboea; see Jamaican notes; prob.
✓ dist., some K.Os. going here. Broaden
✓ split up parietaria more.
✓ trichocaulon; transf. to Stomatanthes,
Valid & descr. See P-3
diversifolia; Cf. Weald. whose is type?
✓ I can not c. cited

~~pedata~~
crenegrama; decide where to put
✓ decide K.Os etc.; Fit up
with goeleneri for typing.
cymbifolia
✓ Consider putting that away
✓ & from flexuosa. Can it be
3-nerved off. crenegrama? - Ha
✓ verticella; Cf. W ed. as to where the
type ✓ See or K.!
✓ pulegii; revise, sep. parts, see notes
under various hds., attempt to transf. 4

p.9. Notes 2

ecaptica
Retype loose citations from Em. mss

capitellata
of Pans ver. of type & revise.
sep. packet.

rhombifolia
See (- notes; did number ever use this name for WTW Jan 1222?

elegans
See note on ecaptica

subsessilata (a semiamplexicaulis?)
Check up with photo & notes
nutriciana, etc. + anomala + Bruchtheim not affected
Go over carefully; notes not touched.

macrophylla
See Bur-3, earlier name?

pumilaefolia (Sw.) Weddell.
Picked 1688 (Report!)

speciosa
of orig.; Kobig. omitted from Ehret copy

cerabroalyx & subsimina
Perhaps bring over to pubescens gp
& of B-5

P9-Work 3

hygalina ?

In B-4 says 3 sa things this which not cited. check on spec., perhaps omitted in Ofm.

aquila

Review pattern since seeing type (at Pan & BW). Only slanted thin in postmale.

ceraloceryx

/ Include as Sp. 40a. See notes

ulei (Brazil)

Get out MS & put with other species soon & include.

Include The seed. of B

typ - Madrids, not Juleq.

Get references thereof Eur. notes

Journ. Wash. Acad. Sci.

15: 298. 1925.

Pilea (Herb. Willd.)

Disregard Nov. H.&B. things publ. by W. 3/21/30

Urtica semiserrata Willd. = mutisii (H.&B. coll.)
" cuspidata " " Sp. Pl. 4:249. " = lacers in New Ind.
" brachystachys " = " but with large teeth as in Easton Cord.
" pruriens = U. urens (type Peru).
✓ " hernarioides, type coll. of Sw.
✓ " serpyllacea in H.W. = U. thymifolia (sure!) Humb. 2143 (H.W. 1[illegible]22).
✓ " thymifolia ty. c. H.&B.
✓ " arguta " "

Main Herb. B (omitted)

P. elegans E/ longest leaved Chilian sp
✓ Chile: Coronel, Ochsenius in 1862

Borrow from B

Raimond Urts. + small phy. I have noted as wanting to borrow, both at end of Urt.

Pilea querceifolia

NEW SPECIES OF PLANTS FROM GUATEMALA (a)

C. V. Morton

The following new species have been detected in a large collection recently made in Guatemala by Dr. Alexander F. Skutch. Several additional new species belonging to critical groups will be described in a future paper.

CHUSQUEA LANCEOLATA Hitchc., sp. nov. Culmus erectus, 10 m. altus, in diametro ca. 6 cm.; vaginae internodiis breviores, ore nudo; laminae planae, lanceolatae, basi rotundatae, acuminatae, supra glabrae, subtus pubescentes, 12-15 cm longae, 1.5-2.5 cm. latae; panicula ca. 15 cm. longa, ramis 5-7, adscendentibus vel patulis, ramulis brevibus adpressis; spiculae 6-9 mm. longae, glabrae; glumae 2, obtusae, plus minusve inaequales, 0.5-1.5 mm. longae; lemmata sterilia 2, dimidiam spiculam aequantia, acuta vel acuminata; lemma fertile acuminatum, minute apiculatum.

Main culms erect, about 10 meters tall, 6 cm. thick at base; flowering branches leafy, 30 to 40 cm. long, scaberulous, the sheaths slightly roughened, longer than the internodes, naked at summit; ligule firm, slightly dentate, 1 mm. long; blades of the flowering branches lanceolate, flat, rather thin, rounded into a short pubescent petiole 2 to 4 mm. long, acuminate to a fine point, scabrous on the margins, rather strongly tessellate-veined, pubescent beneath, glabrous but slightly roughened on the upper surface, 12 to 15 cm. long, 1.5 to 2.5 cm. wide, the main veins 5 or 6 pairs; panicle more or less inclosed in the uppermost sheath, about 15 cm. long, the main branches 5 to 7, ascending or spreading, floriferous from near the base, the lower 2.5 cm. distant, 7 to 9 cm. long, the axis and branches angled, scabrous-pubescent; spikelets 6 to 9 mm. long, purplish, imbricate on short appressed branches, the ultimate or lateral pedicels mostly less than 1 mm. long; glumes rounded, obtuse, more or less unequal, glabrous, the first 0.5-1 mm. long, the second somewhat longer to twice as long; sterile lemmas about equal, about half as long as the spikelet, acute or acuminate, glabrous except the scaberulous keels, 3- to 5-nerved; fertile lemma about 9-nerved, acuminate, glabrous, minutely apiculate; palea about as long as the lemma.

Type in the U. S. National Herbarium, no. 1,587,761, collected at Santa Elena, Dept. Chimaltenango, Guatemala, alt. 3000 meters, in cypress forest, December 24, 1933, by A. F. Skutch (No. 768).

The species is known only from the type collection. The type specimen consists of two flowering branches 35 to 40 cm. long, with 3 or 4 leaves and a terminal inflorescence. The label gives the height and thickness of the main culm.

PILEA QUERCIFOLIA Killip, sp. nov. Herba monoica, glabra; caules erecti, basi radicantes, simplices vel apicem versus ramosi; folia inferioria reducta, decidua, superioria opposita, aequalia, ovata, acuminata, basi rotundata vel auriculata vel interdum obliqua, 3-nervata, membranacea, subtus pallida, grosse serrato-crenata; cymae masculae 10-12-florae pedunculatae, pedunculis filiformibus, floribus pedicellatis, segmentis oblongo-lanceolatis; cymae foeminae pedunculatae, floris segmentis inaequalibus; achaenia lanceolato-ovata, compressa, laevia.

Plant glabrous throughout; stem erect, rooting at the basal nodes, about 30 cm. high, simple or branched near the apex, the lower leaves much reduced and soon deciduous, the lower internodes elongate, up to 5 cm. long; stipules oblong-lanceolate, 4 to 5 mm. long, 2 to 2.5 mm. wide, subacute, soon deciduous; leaves of a node subequal and similar, the petioles 0.7 to 3.5 cm. long, the blades ovate, 4 to 12 cm. long, 2 to 5 cm. wide, acuminate at apex, at base rounded or subauricular, or sometimes oblique, coarsely serrate-dentate from apex to base (teeth ascending, rounded), 3-nerved (lateral nerves extending to the upper third of the blade), membranous, pale beneath, bearing obscure linear cystoliths on both surfaces; plants monoecious, the cymes unisexual; staminate cymes with filiform peduncles 2 to 4 cm. long, 10- to 12-flowered, 8 to 10 mm. wide, the flowers pedicellate, subglobose in bud and 2 to 2.5 mm. in diameter, the segments oblong-lanceolate, about 1 mm. long, dark green, pale at base; pistillate cymes borne at the same axils with the staminate, on peduncles subequal to or slightly shorter than those of the staminate, 7 to 8 mm. wide, the segments 3, markedly unequal, the middle one about 0.8 mm. long, the lateral ones barely 0.2 mm. long; achenes lance-ovate, about 1 mm. long, strongly flattened, obscurely costate on one face, smooth.

Type in the U. S. National Herbarium, no. 1,585,999, collected at Chichavac, Dept. Chimaltenango, Guatemala, alt. 2400 to 2700 meters, in a deep ravine in dense forest, August 19, 1933, by A. F. Skutch (No. 559).

This species is related to P. gracilipes Killip, a species common in Costa Rica and western Panama, the two having very similar floral characters. The proposed species is, however, readily distinguished by the larger, proportionately broader leaves, which have much larger teeth, the toothing being, indeed, more pronounced than in any other species

with which the writer is familiar. In general outline the leaves resemble those of Quercus prinus.

DALEA DISPAR Morton, sp. nov. Frutex usque ad 1.8 m. altus, diffuse ramosus; caules hornotini virides, subteretes, 2-3.5 mm. diam., glabri, plus minusve longitudinaliter striati; folia alterna, imparipinnata, stipulis lineari-subulatis, usque ad 10 mm. longis, pubescentibus, petiolo ca. 1.5 mm. longo, viridi, fere glabri, foliolis ca. 7-jugis, oblongis, ca 18 mm. longis et 6 mm. latis, oppositis vel alternis, apice mucronatis, basi obtusis, membranaceis, pallido viridibus, glabris, subtus glanduloso-punctatis, stipellatis, stipellis minutissimis, glabris; inflorescentia racemosa, anguste cylindrica usque ad 17 cm. longa, floribus dense confertis, adscendentibus, pedicellatis, pedicellis brevissimis, ca. 0.6 mm. longis, crassis, apice articulatis, bracteis concavis, lanceolatis, apice longe subulatis, glabris; calycis tubus anguste campanulatus, 3-3.5 mm. longus, 10-costatus, perspicue glanduloso-punctatus, villosus, lobis subulatis, viridibus, ca. 2.2 mm. longis, villosis, margine subspinulosis; flores lutei, vetustiores purpurascentes; vexillum longe unguiculatum, ungue usque ad 7 mm. longo, limbo suborbiculari, ca. 4 mm. longo et 3.5 mm. lato, apice obtuso, basi cuneato, non appendiculato, dorso basi villoso; alae longe unguiculatae, ungue tubo stamineo basi adnato, limbo oblongo, ca. 3 mm. longo, valde obliquo, basi uno latere unguiculato; carinae petala alis similia, ca. 4.5 mm. longa, parum connata, apice et basi libera, unguibus liberis; stamina 9 in vaginam connata, vexillari deficiente; ovarium compressum, hirsutum; stylus villosus.

Type in the U. S. National Herbarium, no. 1,494,921, collected at Chichavac, Dept. Chimaltenango, Guatemala, alt. 2400-2700 meters, February 18, 1933, by A. F. Skutch (No. 259). An additional specimen was collected at the same locality, December 2, 1933 (Skutch 725).

This is apparently an isolated species without a close relative, at least among the North American species. In Rydberg's treatment in the North American Flora it would seem to be closest to the Section Leucostomae, differing essentially nevertheless from all species of that section.

GERANIUM PULCHRUM Morton, sp. nov. Sect. Incanoidea? Herba perennis; caules ex radice numerosi, decumbentes, nodis saepe radicantes, graciles, 1-1.5 mm. diam., angulati, strigillosi (pilis retrorsis) vel demum glabrati; folia opposita, radicalia longissime petiolata, petiolo usque ad 14 cm. longo, laminam 3-7-plo longiore, tenui, strigilloso, stipulis lanceolatis, ca. 5 mm. longis, brunneo-scariosis; lamina membranacea, ambitu plus minusve deltoidea, usque ad

2.7 cm. longa et 4.3 cm. lata, fere usque ad basin quinquepartita, segmentis pinnatifidis, ultimis lanceolatis, acutis, pallido-virides, supra pilis sparsis hyalinis rectis acutissimis minutis, sursum spectantibus dissita, subtus hirsutula; pedunculus axillaris, longus (usque ad 10 cm.), pubescens, pilis patentibus vel subadpressis, interdum glandulosis, biflorus, pedicellis usque ad 2.5 cm. longis, glanduloso-pilosis, bracteis subulatis, ca. 5.5 mm. longis; calycis lobi ca. 6.5 mm. longi, ovati, virides vel purpureotincti, subulato-mucronati, trinervii, extus strigillosi, pilis longioribus patulis intermixtis; petala lilacina, purpureo-venosa, oblanceolata, ca. 13 mm. longa, 4 mm. lata, apice rotundata, intus basi hirsuta; stamina basi dilatata, ciliata; styli et ovaria pubescentes; fructus deest.

Type in the U. S. National Herbarium, no. 1,587,712, collected at Santa Elena, Dept. Chimaltenango, Guatemala, alt. about 2850 meters, November 25, 1933, by A. F. Skutch (No. 709).

The species is related apparently to G. Palmeri Rose, of central Mexico, but that species has much broader petals (over 10 mm. in width) and longer pedicels, these strigillose rather than glandular-pilose. Furthermore, the stems of G. Palmeri are not prostrate and do not root at the nodes. The latter character seems to place G. pulchrum in Knuth's section Diffusa, although it bears little resemblance to the other species, all South American. It is more probably to be placed in the section Incanoidea.

BUDDLEIA SKUTCHII Morton, sp. nov. Caules teretes, ca. 5 mm. diametro, stellato-puberuli, demum glabrati; folia opposita, stipulata, stipulis connatis, semiorbicularibus, revolutis, crassiusculis, petiolata, petiolo usque ad 27 mm. longo, dense stellato-puberulo, supra canaliculato, lamina oblongo-lanceolata, usque ad 16 cm. longa et 5.5 cm. lata, coriacea, integra, apice acuminata, basi cuneata, obliqua, supra viridi, sparse stellato-puberula, mox glabrata, venis impressis, subtus dense stellato-tomentosa, pilis minutis, albidis vel aureis, venis elevatis, reticulatis; capitulae ca. 16-florae, globosae, densae, 3-5 mm. diametro, in paniculam terminalem sessilem 13 cm. longam et 16 cm. latam dispositae; bracteae minutae, lineares, stellato-tomentosae; flores aurei, sessiles; calycis tubus ca. 0.5 mm. longus, lobis ca. 1 mm. longis, deltoideis, extus stellato-tomentosis, apice acutis; corolla aurea, tubo turbinato, ca. 1.5 mm. longo, glabro, lobis deltoideis, ca. 1.5 mm. longis, obtusis, suberectis, extus stellato-puberulis, intus sparse pubescentibus; stamina 4, fauce affixa, filamentis glabris, ca. 0.5 mm. longis, antheris oblongis, ca. 0.5 mm. longis, introrsis, loculis distinctis, parallelis; ovarium apice

pubescens; stylus indivisus, clavatus; fructus deest.

Type in the U. S. National Herbarium, no. 1,494,931, collected at Chichavac, Dept. Chimaltenango, Guatemala, alt. 2400-2700 meters, February 2, 1933, by A. F. Skutch (No. 269). An additional specimen was collected at the same place in November, 1930 (Skutch 54).

The species is distinguished at once from all other North American species of Buddleia by its small pedunculate heads, disposed in large terminal sessile panicles. The large persistent stipules and entire leaves also distinguish B. Skutchii from most of the other species.

SOLENOPHORA PIRANA Morton, sp. nov. Frutex 1.8-2.4 m. altus; caules fistulosi, ca. 8 mm. diam., subquadrangulati, villosi, pilis hyalinis, multiseptatis, flaccidis, demum subglabrati; folia opposita, longepetiolata, petiola usque ad 10.5 cm. longo, villosulo, lamina elliptica, magna, usque ad 30 cm. longa et 14 cm. lata, duplicato-dentata, apice breviter acuminata, basi cuneata, inaequali, tenuiter membranacea, supra viridi, pilis satis sparsis multiseptatis obsiti subtus pallidiore, fere glabra, venis albidis perspicue reticulatis pilis paucis minutis instructis; inflorescentia axillaris, subumbellata, 3-5-flora, pedunculo communi elongato, usque ad 8 cm. longo, subglabro, bracteis oblongis ca. 16 mm. longis, pedicellis usque ad 37 mm. longis, glabratis; calycis tubus (pars adnatus) turbinatus, ca. 5 mm. longus, villosus, pars liberus subcampanulatus, ca. 11 mm. longus, ca. 12.5 mm. latus, subglaber, viridis, apice obliquus, lobis inconspicuis, deltoideis, ca. 4 mm. longis, 6 mm. basi latis, perspicue denticulatis, apice acutis; corolla flava, 4-4.5 cm. longa, anguste cylindrica, erecta, basi ecalcarata, 8 mm. lata, sursum paullulum ventricosa, villosa, intus villosula, limbo vix 10 mm. diametro, lobis parvis, subaequalibus, erectis, ca. 5 mm. latis, 2 mm. longis, immaculatis, apice fere truncatis, integris; stamina 4, didynama, filamentis liguliformibus, glabris, rectis, corollae basi adnatis, antheris connatis, exsertis, loculis oblongis, discretis; staminodium evolutum; ovarium omnino inferum; stylus rectus, pubescens, stigmate dilatato, concavo; disci glandulae 5, irregulares, fere distinctae, pubescentes; fructus deest.

Type in the U. S. National Herbarium, nos. 1,587,684 and 1,587,685, collected near Chichavac, Dept. Chimaltenango, Guatemala, alt. about 2550 meters, along a stream in a deep ravine, November 11, 1933, by A. F. Skutch (No. 680). An additional specimen was collected at Santa Elena, Dept. Chimaltenango, Guatemala, June 2, 1933 (Skutch 346).

The species is named at the request of Dr. Skutch in honor of Señor Don Axel Pira, his host in Guatemala.

The species is most closely related to S. insignis (Mart. & Gal.) Hanst., a Mexican species known only from the original collection. The description by Martens & Galeotti is short, but a more complete one is given by Fenzl (b). S. Pirana differs in having the disk composed of five rather than two glands and the corolla pilosulous, rather than glabrous within.

- - - - - - - - - - - - - - - - -

(a) Published by permission of the Secretary of the Smithsonian Institution.
(b) In Otto & Dietr. Allg. Gartenz. 16: 306. 1848.

Unicau Pilea acc. Weddell

nicoyleyella

(var. longifolia) o serrulifolia)

hermanoides,

glabra, Pax 26:182.1891:

27. serpyllifolia (off Panetanic)

85. ayudula Urb. Anguilla.

93. rhepioides

97. vulcanica

109. mexicana

var. vegetior

110. falcata

130. pubescens v. funcacea (fuerte Rico

" rupicola

133. longipes

134. aequalifolia + Urb. Cayenne

140. tuberosa

149. Jamaica

151. Shaudii

152. scrobiculata

153. robusta

robusta Liebm. Mel. Sam.

Hort. Haun. 1854: 20.

Amer. Nat. III. 19: 566.

(85)

? =

Conyzoides Blume (from wood)

Cf Unitze Adicea Conyzoides.

To do on Paleo

✓1. Insert glabrous & entire
✓2. check par.
✓3. Be sure all from Card. or Thomp.
4. Mark for printer.
5. Auto ' in ins loc.
6. ; for ⊙ in ins loc.

Reverse Key

Sp. 32 - 37 Good enuf.
87 - 89

Sp 105 - 105a
111 - 111a

Mount = Mount*

✓ Bibliography

Bibliography Typed

Paris Benoît

Pilea serpyllacea

✓ Ibarra, no. 3583

✓ Guapulo " 2292

P. arguta

Pichincha " ~~[illegible]~~ 3257

Pilea is by far the largest genus of Urticaceae. Weddell in his final monograph of the family recognized 159 species of Pilea as valid, about ~~of~~ of which were said to occur in the Andes. ~~Since then — additional species have been described from that region prior, to and including the 30 published in my "New species of Pilea from the Andes."~~

Impressed with the number of new species that were appearing in material sent me for identification I began the preparation of an account of all the Andean species some years ago. This study was completed in 1935 but unfortunately it was not possible to publish the paper in its entirety at that time. Instead, a greatly abridged treatment was issued, containing a key to all the Andean species, descriptions of 30 new species, and a few changes of name or of rank. There was no opportunity at present to discuss the synonymy. It therefore seems highly desirable that this preliminary paper be followed as soon as possible by a more extensive one.

As the present paper appears in the same volume as the first one there is little advantage in reproducing the key or in giving diagnoses of the species which were there described as new. A slight

alteration to the key is suggested in the discussion of P. poeppigiana; for two names in the key, P. leptophylla (Species no. 55) and P. macrophylla (Species no. 89), P. fendleri and P. picta should be substituted respectively. ~~The position which~~

In order to retain the numbering of the species ~~from~~ used in the key I have given "a" number to the single species, P. cuabiensis, described in the interim, and to the three species newly proposed in the present paper.

Of the species treated as valid in the following text P. microphylla, P. ternarioides, P. hyalina, and P. pubescens are rather widely distributed in tropical America; P. involucrata and P. nummulariifolia occur in both Central America and the W. I.; ~~and~~ P. pittieri and P. adnivata are likewise known from ranges from Mexico to Colombia; P. pittieri, described from Costa Rica, is known from western Colombia. ~~A few of the species By far~~ By far

----- Peperomia.

numbers to the single species described in the interim and to the three species newly proposed in the present paper.

Again I wish to express my appreciation to the various curators of herbaria who have given me their generous cooperation.

List of herbaria consulted

In the preparation of this revision I have had the opportunity of examining nearly all the type specimens of the Andean species, photographs of which are deposited in the United States National Herbarium. I wish again to express my appreciation to those in charge of herbaria I have consulted. These herbaria are indicated thus in the citation of specimens.

Add from p. 6 of carbon 9 thus

These to be completed, Riley, was ready ~~submitted~~ for publication in 1935. Unfortunately it was not possible at that time to print the paper in its entirety. Instead, an abridgement, consisting of a key to the 111 species then believed to occur in the Andes, description of 30 new species, and several changes in name or rank, was published. There was no opportunity to give descriptions of the species, keyed from the Andes, or to list specimens. It therefore seems highly desirable that this failing account be followed as soon as possible by the more complete work.

As the present paper appears in the same volume as the first one there seems little advantage in repeating the key or in giving diagnoses of the species which were then described as new. Changes of specific names, an alteration in the text of the key and the insertion of a species described since 1935 will be found in the following pages.

In the new migratory alterations which have been made in the work since the publication of the key, it has been found necessary to change the numbering of the species given in the key. In order to retain the numbering of the species given in the key I have given "a"

Students of the Andean flora have found the work of identifying collections exceptionally difficult because of the fact that for many plant families there is no recent revision which brings together the numerous species described since the publication of such standard works as Martius' Flora Brasiliensis and de Candolle's Prodromus, and establishes their relationship with earlier ones. Not infrequently many of the species have been proposed by botanists at different institutions working with entirely different series of specimens for comparison, and frequently the descriptions are to be sought in many different publications. A Macbride's Flora of Peru, in course of publication by the Field Mus., in assembling these newly described species, is a decided help to students of the flora of the other Andean countries.

When I commenced the study of Andean plants several years ago I soon appreciated the urgent need for a revision of certain groups, and started to prepare accounts of several genera. The first of

MUSÉUM NATIONAL D'HISTOIRE NATURELLE

BOTANIQUE

(PHANÉROGAMIE)

57, Rue Cuvier - PARIS (V°)

Tél. : Glacière 30-35

Paris, le 31 Mars 1933

Monsieur H. HUMBERT, Professeur au Muséum.
à Mr le Dr KILLIP. Associate Curator
Smithsonian Institution U.S.National
Museum - WASHINGTON , D.C. U.S.A.

Monsieur et cher Collègue ,

J'ai fait faire une petite enquête sur le sujet qui vous intéresse : les plantes de Grésar . Il s'agit d'un petit herbier offert en I872 par ce Monsieur GRISAR , de la Société d'Acclimatation ; mais qui n'avait pas été récolté par lui ; ducollecteur réel et de la région précise , on ne sait rien .

Veuillez agréer , Monsieur et cher collègue , l'expression de mes meilleurs sentiments .

J. Humbert

Read here &
go in Monday.

9. A. H.

The new species have been taken out for the paper to be published by S. I. in summer of 1935. They showed to insured here, ~~is~~ somewhat abbreviated to conform with earlier species. Then OK to publish, adding Introduction along lines of that at end of this volume.

6/22/35

Countries south of the Rio Grande, with their principal subdivision, arranged in order for citation of specimens.

1. Mexico

1 Lower California
2 Sonora
3 Chihuahua
4 Coahuila
5 Nuevo Leon
6 Tamaulipas
10 Sinaloa
9 Durango
8 Zacatecas
7 San Luis Potosí
11 Nayarit
13 Aguascalientes
12 Jalisco
14 Guanajuato
15 Queretaro
16 Hidalgo
17 Veracruz
18 Puebla
19 Tlaxcala
21 Morelos
20 Mexico
22 Michoacán
23 Colima
24 Guerrero
25 Oaxaca
26 Tabasco
27 Chiapas
28 Campeche
29 Yucatan
30 Quintana Roo

2. Guatemala

Petén
Quiché
Huehuetenango
Alta Verapaz
Baja Verapaz
Izabál
San Marcos
Quezaltenango
Totonicapan
Progreso
Zacapa
Chiquimula
Jalapa
Guatemala
Sacatepequez
Chimaltenango
Sololá
Retalulehu
Suchitepequez
Escuintla
Amatitlan
Santa Rosa
Jutiapa

3. Honduras

Ocotepeque
Copan
Gracias
Santa Barbara
Intibuca
Cortes
Comayagua
La Paz
Tegucigalpa
YoroAtlantida
Olancho
Colon
Mosguitia
El Paraiso
Choluteca
Valle

4. British Honduras

5. Salvador

Ahuachapán
Santa Ana
Sonsonate
La Libertad
San Salvador
Chalatenango
Cuscatlan
La Paz
Cabañas
San Vicente
Usulatan
San Miguel
Morazon
La Union

6. Nicaragua

Gracias a Dios
Bluefields
Nueva Segovia
Prinzapolca
Matagalpa
Jinotega
Esteli
Chinandega
Leon
Managua
Masaya
Rio Grande
Carazo
Granada
Rivas
Chontales
Siquia
San Juan del Norte

7. Costa Rica

Guanacaste
Puntarenas
Alajuela
Limón
Heredia
San José
Cartago

8.Panama

Bocas del Toro
Chiriguí
Veraguas
Los Santos
Coclé
Canal Zone
Colon
Panama
Darién

9. Bermuda

10. Bahamas

11. Cuba

Pinar del Rio
Havana
Matanzas
Santa Clara
Camaguey
Oriente

12. Haiti

13. Dominican Republic

14. Jamaica

15. Puerto Rico

16. Lesser Antilles

U. S. Virgin Islands
St. Croix
St. Thomas
St. John
British Virgin Islands
Antigua
Monserrat
Guadeloupe
Dominica
Martinique
St. Lucia
St. Vincent
Barbados
Grenada

17. Curacao

18. Trinidad & Tobago

19. French Guiana (Cayenne)

20. Surinam (Dutch Guiana)

21. British Guiana

22. Venezuela

Nueva Esparta
Sucre
Monagas
Delta Amacuro
Anzoátegui
Guárico
Miranda
Federal District
Aragua
Carabobo
Yaracuy
Cojedes
Falcón
Lara
Portugesa
Trujillo
Zulia
Mérida
Táchira
Zamora
Apure
Angostura (Bolivár)
Amazonas

23: Colombia

Goajira
Magdalena
Atlantica
Bolívar
Norte de Santander
Santander Boyacá
Cundinamarca
Arauca
Casanare
Vichada
Meta
Vaupes
Caquetá
Putumayo
Tolima
Neiva
Huila
Antioquía
Caldas
El Chocó
El Valle
El Cauca
Nariño

24. Ecuador

Esmeraldas
Manabí (?)
Guayas
Oro
Carchi
Imbabura
Pichincha
León
Tungurahua
Los Rios
Bolívar
Chimborazo
Cañar
Azuay
Loja
Oriente
Colon (Galapagos)

25. Peru

Tumbez
Piura
Lambayeque
Cajamarca
Amazonas
San Martín
Loreto
Libertad
Ancachs
Lima
Huánuco
Junín
Huancavelica
Ica
Agacucho
Apurimac
Cuzco
Madre de Dios
Puno
Arequipa
Moquega
Tacna

26. Bolivia

Beni
La Paz
Cochabamba
Santa Cruz
Oruro
Potosi
Tarija
Chuquisaca
Chaco

27. Chile

Arica
Tarapacá
Antofagasta
Atacama
Coquimbo
Aconcagua
Santiago
Colchagua
Curico
Talca
Linares
Maule
Nuble
Concepción
Bio-Bio
Arauco
Malleco
Cautin
Valdavia
Llanquihue
Chilloe
Magellanes

28. Brazil

Amazonas
Pará
Maranhao
Piauhy
Ceará
Rio Grande do Norte
Parahyba
Pernambuco
Alagóas
Sergipe
Bahia
Goyas
Matto Grosso
Acre
Minas Geraes
Espirito Santo
Rio de Janeiro (including Federal District)
Sao Paulo
Paraná
Santa Catharina
Rio Grande do Sul

29. Uruguay

Artigas
Rivera
Tacuarembó
Salto
Paysandú
Río Negro
Durazno
Cerro Largo
Trèinta y Tres
Soriano
Flores
Florida
La Valleja
Rocha
Colonia
José
Canelones
Maldonado

30. Paraguay

31. Argentina

Los Andes
Jujuy
Salta Catamarca
Tucumán
Santiago del Estero
Formosa
Chaco
La Rioja
San Juan
Mendoza
San Luís
Córdoba
Santa Fé
Corrientes
Misiones
Buenos Aires
La Pampa
Neuquen
Rio Negro
Chubut
Santa Cruz
Tierra del Fuego

Insert Entre Rios

C. Amer. Pilea in Wurdack, perhaps elsewhere
(partial)

US

Types

JDS 5952 (Cooper 311) costaricensis Sm. ~~Type~~
" 7467 (Tond. 12655) dormeel-smithiana K
" 7983 (Tonduz) echolophyla Sm
Mexico 5426 gracilipes K
JDS 2751 (JDS) irrorata
" 939 (Tonduz) pansamalana
Seler " robustior Donn. Sm. = dormeel-smithiana
JDS 754 (Tonduz) pleuroneura
" 6779 (JDS) plericlada
Tonduz II 1707 purulensis
JDS ~~3446~~ 3147 (Heyde & L) quichensis
" 1040 (Tonduz) riparia
" 3145 (H. & L.) senarifolia
Tonduz 2011 tridentata K
" H 1835 tuerckheimii Sm.
Inst. C.R. – Pitt. 13055 auriculata Leibm
" Tond. 10789 "
JDS 6778 "
Inst CR 12514 "
Tond. 2086 "
Tonduz II 1980 laevicaulis Wedd.
JDS 3146 (H&L) "
Heyde 104 "
Tonduz (CR 12655) JDS 7467 dormeel-smithiana K

Euchalocnemis
Tonduz 10789 with
Donn. Sm. for
Pilea tonduzii
Killip a new combination

TCR
Tourn. 10790 - graciliper IK
TCR 11805 "
11920 "
7927 "
JDS 5950 "
JDS 6234 (H&L) hemericides Rudd
TCR 3086 "
" 12693 "
7144 "
many hyalina det as pumila
TCR 2432 pallida
7169 "
Kuntze in 1874 "
Tourn H 1296 paramamalama
" 3901 "
many parietaria (L.) Bl. also probably
Tourn. 9252 just puteriolata
JDS 6780 "
Just. "
Tourn 13283 "
Heyde 125 guichenoi
Tourn H 1108 rupia
Heyde 226a serrifolia
Tourn 2491 tridentata
" 3777 trinobhemii
H 2293 "

Bigalke, H.

Die blattspodogramme der Urticaceae und ihre verwendbarkeit für die systematik. Beitr. Biol. Pflanz. Cohn 21: 1-58. pl.i-v. 1933. no.1.

Theodore Rothman, SM

621 Market St.,

CKB
29 San Francisco, Calif.

Trop. Amer. ||| - 3

viscidity
fruit
hyaline

30
50

M. CA o Andes

W. I. o Andes

non Andean o Andes (1) (1) - 1

Andes - Type country |||| |||| |||| |||| |||| |||| |||| ||| (32)

Andes - 2 ~~3~~ coll. ± 1 loc

|||| |||| = 9

Andes widely separated |||||| 6

Add to number occurring in total

1

10 to 1919

Add "Plant glabrous throughout to all them)

Ev over 1935 Enc. notes;
several not encircled
12/14/37

Index to Central American Species of Pilea

acuminata - 29

angustifolia - 19

auriculata - 26

beguinotii - 16b

caudata -12

chiriquina - 11

cornmanae - 15

cornuto-cucullata - 16a

costaricensis - 13

dauciodora - 17

diversissima - 10a

donnell-smithiana - 14

ecbolophylla - 9

fasciata -28

gracilipes - 18

herniarioides -2

hyalina - 32

involucrata - 25

irrorata - 20

lindeniana - 3

microphylla - 1

nummularifolia - 25a

pallida - 21

pansamalana - 10

parietaria - 4

pittieri - 30

pleuroneura - 7

pteridhada - 27

pubescens - 24

purulensis - 16

quercifolia - 18a

quichensis - 22

riparia - 5

senarifolia - 6

skutchii - 18b

standleyi - 31

tridentata - 8

tuerckheimii -23

Tiles + Urtige [illegible]

(Ca)

China

Kapella sinensis, Oliv. n. sp.

Hooker's Icon. Plant. Vol. 6. Plate 1595

Mrex. (25

Acuminata Liebm. Vidensk.
Selsk. Skr. 5/2: 302. 1851

aa d
bb ee
cc

Iridax brachylepis, Hemsley.

Biol. Cent.-Amer. 2, p. 207.

64

longipes Liebm. mex.

(154)

aa

bb

cc

dd

ee

lc 301

Tillandsia longicaulis Baker.

Journ. Bot. **26**:80. 1888.—Brazil.

(12)

Braz. (23

also Ca 5

pubescens

Liebm.

aa

bb

cc

dd

ee?

Tephrosia talpa Wats.

Proc. Amer. Acad. **22**: 405. 1887.—Mexico.

(7)

122

tuerckheimii

aa

bb

cc

d

e

JDS

B. G. 46:116

Africa.

Tephrosia damarensis Engl.

Bull. Soc. Botanique Revue. 1889. 34.

(Botanische Jahrbücher X, 1).

quichensis
JDS
aa
bb
cc
d (?)
e

Guat. (21

B.G. 19:12

Tissa Adanson (Greene)

Pittonia. I. 187.

Bull. Torr. Club. XVI. 125

Spergularia Pers.

(20

Mexicana Wild

Mex.

aa
bb
cc
dd
e

l.c.
p. 214

Tellima pentandra Canby

Bot. Gaz. XV. 62; XVI. 237.

T. nudicaulis Greene.

Heuchera Williamsii Eaton.

(19)

irrorata gds

aa
bb
cc
d
e

19:11

Tricuspis Texana Thurb.

Triodia Texana Watson.

Mex. (18

falcata Lieb.

aa
bb
cc
d
e

L. C. 304

C. America.

Tillandsia spreptophylla Plate.

Gartenflora xxxviii. 288. 289.

(Bull. Jour. Bot. Club. xviii. 33).

(17)

Lvs < 2 m. l.

Lvs ovate, acute
Base ~
acute-serrate

dauciadora wedd.

aa
bb
cc
d
ee

Foreign

Thymus spinaprecostatus Velenovsky.

Bull. Soc. Botanique. XXXVII. 43. Revue A.

Mex. (16

rhexioides Liebm.
(141)

aa
bb
cc
d
e(?)

lc 304

Lox. ecliptic - subpalcate

2.5-3.5 l
1.8, 2.3 b

EXPLORATION IN PERU

Dept. Junín: Puerto Bermudez; alt. about 375 meters; dense forest

No. E. P. KILLIP, A. C. SMITH } *Collectors* *July 14–17, 1929*

Collected under the auspices of the Smithsonian Institution

Ca Urt.

Phen. hirtus minor

Guat: Chimatenango; Volcan

Acatenango, Kellerman

6543 (F)

EXPLORATION IN PERU

Dept. Junín: Puerto Bermudez; alt. about 375 meters; dense forest

No. E. P. KILLIP, A. C. SMITH } *Collectors* *July 14–17, 1929*

Collected under the auspices of the Smithsonian Institution

Ca Mt.

Phex. hinterm (form)
resp?

Pitt, 346 (F).

EXPLORATION IN PERU

Dept. Junín: Puerto Bermudez; alt. about 375 meters; dense forest

No. E. P. KILLIP, A. C. SMITH } *Collectors* *July 14–17, 1929*

Collected under the auspices of the Smithsonian Institution

Ca Urt.

Phenax mex

WRM 4995 (F)

Nelson 2469 (F)

EXPLORATION IN PERU

Dept. Junín: Puerto Bermudez; alt. about 375 meters; dense forest

No. E. P. KILLIP, A. C. SMITH } *Collectors* *July 14–17, 1929*

Collected under the auspices of the Smithsonian Institution

Pilea CA

P. pubescens Liebm.

O. R.: Concavas,

Lankester K22

EXPLORATION IN PERU

Dept. Junín: Puerto Bermudez; alt. about 375 meters; dense forest

No. E. P. KILLIP, A. C. SMITH } *Collectors* *July 14–17, 1929*

Collected under the auspices of the Smithsonian Institution

Ca Pilea

P. parietaria (L.) Bl.

C. R.: Concavao, Lankester

256 (F)

EXPLORATION IN PERU

Dept. Junín: Puerto Bermudez; alt. about 375 meters; dense forest

No. E. P. KILLIP, A. C. SMITH } *Collectors* *July 14–17, 1929*

Collected under the auspices of the Smithsonian Institution

Pilea

P. gracilipes Killip

Panama: WRSM. 5426(F)

EXPLORATION IN PERU

Dept. Junín: Puerto Bermudez; alt. about 375 meters; dense forest

No. E. P. KILLIP, A. C. SMITH } *Collectors* *July 14–17, 1929*

Collected under the auspices of the Smithsonian Institution

F Ca Pileen Mg

Ureva carac.

Guat.: Lake Amatitlan,

Kellerman 6553 (F)

= form of Heyde 349

EXPLORATION IN PERU

Dept. Junín: Puerto Bermudez; alt. about 375 meters; dense forest

No. E. P. KILLIP, A. C. SMITH } *Collectors* *July 14–17, 1929*

Collected under the auspices of the Smithsonian Institution

Ca Mit.

Phen. rugos.

Pitt. 347 (F)

Thalictrum pauciflorum, Watson.
Proc. Amer. Acad. Vol. 12, p. 288.

Vulcanica

aa
bb
cc
d
ee

l. c. 303

Mex.
Orizaba
Lus 3.5-6 cm. l
1.5-2.5 b.

(15

Yeloxys commuta Torr.
Bot. Whipple Exped. p. 129.

purulensis
JDS
aa
bb
c
d
e ?

BG 46:115

4-5 am. h.
73

(14)

Tillandsia (Allardtia) sparsiflora Baker.
Journ. Bot. XXVIII. 305, 306.

(13)

Costaricensis

JDS.

>3 cm. b.

small > 1.5

aa

bb

c

dd

e

B.G. 20:294

Tridax bicolor Gray.

Pl. Fendl. 104.

Proc. Amer. Acad. XXI. 391.

Mex. (4)

integrifolia Lietm.

l.c. 298.

a
bb
cc
d
e

Tricuspis mutica Torr.

Triodia mutica Scribn.

C. R. (26

Auriculata Tiebm.

l. c. 299

aa d
bb ee
cc

Trifolium Grantianum Heller.

Muhlenbergia, **1**: 136. 1906.

T. monanthum, var. *tenerum*, f. *Grantianum* McDermott.
T. monanthum tenerum Parish.

Nana Lieber

aa
bb
cc
d
e

l. c. 299

Mex.

Tros. 8-1 am

(27

Tillandsia concentrica Vell.

Aregelia concentrica Mez.

(51)

28

ecrobiculata
Lutin.

Mex.
(Oaxaca)

1.2-1.4 cm.

aa
bb
cc
d
e

lc 300

Trifolium hydrophilum Greene.

Man. Bay-Region, 100. 1894.—California.

pumila Gray

29

Nov

Lus 2-6

aa ~~l. c. 305~~

bb

cc

d

e

Trifolium biflora (L.) B.S.P.
Bull. Torr. Bot. Club. XVIII .25.

Max (30

lundii Liebm.

l. c. 299

Fr 1,5-2 m

aa
bb
cc
d
e

Tillandsia goniorachis Baker.

Journ. Bot. **25**:303. 1887.—Brazil.

(12)

(12)

pansamalana JDS

<3 cm. br.

small <1.5

aa

bb

c

d

e

B G 19:10

4 Tellima (Lithophragma) parvifolia, Hook. & Arn.
Bot. Beechey's Voy. p. 346.

(11)

3-4 cm. [illegible]

small < 1.5

ecbolophylla
JDS

aa
bb
c
d
e

BG 46:115

Tillandsia gradata Baker.

Journ. Bot. **26**:105. 1888.—Brazil.

(12)

(10)

pleuronema DS
aa
b

B 9 19:12

Natal

Tephrosia plicata, Oliv. n. sp.

Hooker's Icon. Plant. Vol. 5 - Plate 1445

senarifolia
JDS
aa
b
cc
d
ee ?

B. S. 19:12

(4)

Tinantia anomala, Scheidw.

Proc. Amer. Acad. ~~XVIII~~ 168, foot note.

glabra S. Wats.

Mex 1

(8)

a

bb

cc

d

e

P. A. A. 26:152

Tephrosia macrantha Rob. & Greenm.

Proc. Amer. Acad. **29**: 383. 1894.—Mexico.

riparia JDS

a

bb

cc

d

e

B. G. 19:11

(7)

Tillandsia Selloana Baker.

Journ. Bot. **26**: 104. 1888.—Brazil.

(12)

rubraefolia Blume

Guat. (6)

a

bb.

cc

d

e ?

Dept Lib
Pilsbry

Look up Bull 8699

no. of vol. & type loc. (genotype)

desc. & pict. pls.

22

an altitude of 1800 meters, February, 1895,
by A. Jonhuz (no. 11929 Nat. Phys. Geog. Costaric.)

This species is most nearly related to Urtica nicaraguensis, being distinguished by its longer, more slender spikes, its broader, leaves, Both of these species, as well as Urtica gracilis, would be considered forms of the European species, Urtica dioica, in the broad sense in which that was conceived by Weddell. In typical European plant the stem and leaves are much more pubescent and stingy, the margins of the leaves more deeply cut, and the inflorescence more branched.

3. Urtica urens L. Sp. Pl. 984. 1753.
armed with stinging bristles;
Stem 15 to 45 cm. high, leaves 1.5 to 4 cm. long,
bearing, particularly on the upper surface, stinging bristles, otherwise nearly
obtuse, rarely acutish, rounded at the base, glabrous; heads androgynous, usually less than
1 cm. long; achene ovate, 1.8 to 2 mm. long, 1 mm.
broad, smooth.
Guatemala (introduced from Europe).

4. Urtica chamaedryoides Pursh, Fl. Amer. Sept.
113. 1814. (Leaves 3 or 4 blade spaces)
Urtica chamaedryoides latifolia Wedd., DC.
Prodr. 16 V: 43. 1869.

Key to Mexican and Central American species of PILEA.

Leaves 1-nerved, or nerveless.

Larger leaf of a node entire.

Stem succulent, becoming shrubby; leaves obovate, longer than broad, golden brown.....1. P. microphylla.

Stem not succulent, filiform, creeping; leaves round-deltoid, broader than long, usually pubescent on margin & upper surface.....2. P. herniarioides.

Larger leaf of a node toothed.

Leaves 4 to 6-verticillate.....3. P. senarifolia.

Leaves in pairs.

Larger leaf 3-toothed at the apex, base unequal.....4. P. tridentata.

Larger leaf 2 to 5-crenate, base equal, to the middle.5. P. pleuroneura.

Leaves 3-nerved, more than 2 mm. broad.

Margin of leaves entire.

Leaves 1-3 cm. broad, cystoliths of lower ~~Margin ciliate.~~ surface linear or fusiform

Stipules linear-lanceolate.....6. P. integrifolia.

Stipules deltoid-acuminate.....7. P. ~~ciliaris~~. = parvula

~~Margin not ciliate.~~

Leaves less than 2.5 cm. long.....8. P. rubaefolia. = alsinifolia

Leaves more than 2.5 cm. long.

Leaves 3.5-5.5 cm. broad, ~~firm~~ thick; ~~cystoliths~~ Cystoliths of upper surface stellate-punctiform.....9. P. riparia.

(Cystoliths of upper surface linear...10. P. glabra.)

Margin of leaves not entire.

Leaves of a node conspicuously unequal.

Smaller leaf less than 1.5 cm. long.

Larger leaf more than 3 cm. broad.....

.....11. P. ecbolophylla.

Larger leaf less than 3 cm. broad.

Leaves cuneate at base; peduncles

shorter than petioles.....12. P. pansamalana. ✓

Leaves rounded at base; peduncles

longer than petioles.....13. P. chiricana. ✓

Smaller leaf more than 1.5 cm. long. P. caudata ✓

Leaves incurved-crenulate; peduncle

of masculine cymes less than

1 cm. long.....14. P. costaricensis. ✓

Leaves serrate; peduncle of masculine

cymes more than 1 cm. long.

Cystoliths present on lower surface

of leaves;

.....

.....15. P. boquetensis. ✓

Cystoliths absent on lower surface

of leaves;

.....16. P. purulensis. ✓

Leaves of a node essentially equal.

Stem and leaves both glabrous.

Peduncles longer than the petioles.

Leaves elliptical.

Flowers monoecious.....17. P. vulcanica.

Flowers dioecious.

Leaves remotely serrate.....18. P. rhexioides.

Leaves closely serrate-crenulate.

.....19. P. gracilis. ✓

Leaves ovate.....20. P. dauciodora. ✓

Peduncles shorter than petioles.

Leaves less than 4.5 cm. long.....21. P. falcata.

Leaves more than 4.5 cm. long.

Cystoliths on upper surface ~~mainly~~ punctiform.

Leaves ~~ovate or~~ ovate-lanceolate,

at least 3 cm. broad.

Stipules deltoid, obtuse, 1 to 2

mm. long.....9. P. riparia.

Stipules lanceolate, acute, 3 to

4 mm. long.....22. P. irrorata.

Leaves narrowly elliptic, less than

3 cm. broad.

Petioles 0.5 to 1.5 cm. long; leaves

remotely serrate.....23. P. mexicana

Petioles 2 to 4 cm. long; leaves

closely serrate.....24. P. botteri

Cystoliths on upper surface ~~all~~ linear

or fusiform.

Margin of leaves crenate-serrate;

leaves becoming black when dry..

.....25. P. quichensis.

Margin of leaves sharply serrate or

serrulate; leaves remaining

green when dry.....26. P. tuerckheimii.

Stem or leaves pubescent.

Peduncles longer than the petioles.

Leaves pilose with white pellucid

hairs on upper surface.

~~Peduncles 2 to 4 cm. long~~.....27. P. pubescens.

Peduncles 5 to 6 cm. long.....28. P. longipes.

Leaves glabrous on upper surface,

or pubescent on the nerves only.

Leaves more than 4 cm. long, ovate-

elliptic.

Leaves rounded at base.....29. P. acuminata.

Leaves cuneate at base.

Peduncles densely pubescent

near apex.....30. P. trichopes.

Peduncles glabrous throughout.

Leaves long-attenuate;

cystoliths all punctiform.

.....31. P. pittieri.

Leaves merely acute;

cystoliths on upper surface

of leaves becoming fusiform

near base of blade.

.....32. P. pteroclada.

Leaves less than 2 cm. long, rotund-

rhombic.....33. P. auriculata.

Peduncles shorter than the petioles.

Leaves 1 cm. or less long.

Leaves round-ovate, crenate;

flowers monoecious.....34. P. nana.

Leaves elliptic-ovate; flowers

dioecious.....35. P. scrobiculata.

Leaves more than 1 cm. long.

Mature leaves 3 to 5 cm. long..36. P. pumila.

Mature leaves less than 3 cm.

long.....37. P. lundii.

Key to Mexican and Central American species of PILEA

a. Margin of leaves entire (or at least that of the smaller leaf of a pair entire)
  b. Leaves pinnately 1-nerved or without nerves
    c. Both leaves of a pair entire
      d. Stem succulent, becoming shrubby; leaves obovate ..... 1. microphylla
      dd. Stem not succulent, filiform, creeping; leaves round-deltoid ..... 2. herniarioides
    cc. Smaller leaf of a pair entire, the larger 3-toothed at the apex ..... 3. tridentata n.sp.
  bb. Leaves 3-nerved
    c. Margin ciliate
      d. Stipules linear-lanceolate ..... 4. integrifolia
      dd. Stipules deltoid-acuminate ..... 5. ciliaris
    cc. Margin not ciliate
      d. Leaves less than 2.5 cm. long ..... 6. rubaefolia
      dd. Leaves more than 2.5 cm. long
        e. Cystoliths of upper surface stellate-punctiform ..... 7. riparia
        ee. Cystoliths of upper surface linear ..... 8. glabra
a. Margin of leaves not entire
  b. Leaves pinnately 1-nerved
    c. Leaves 4-6 verticillate ..... 9. senarifolia
    cc. Leaves in pairs ..... 10. pleuroneura
  bb. Leaves 3-nerved
    c. Leaves of a node conspicuously unequal
      d. Smaller leaf less than 1.5 cm. long
        e. Larger leaf more than 3 cm. broad ..... 11. ecbolophylla
        ee. Larger leaf less than 3 cm. broad
          f. Leaves cuneate at the base; peduncles shorter than the petioles ..... 12. pansamalana
          ff. Leaves rounded or oblique at the base; peduncles longer than the petioles ..... 13. chiricana n.sp.
      dd. Smaller leaf more than 1.5 cm. long
        e. Cystoliths present on lower surface of leaves ..... 14. costaricensis
        ee. Cytoliths absent of lower surface of leaves ..... 15. purulensis
    cc. Leaves of a node essentially equal
      d. Stem and leaves both glabrous
        e. Peduncles longer than the petioles
          f. Leaves elliptical
            g. Flowers monoecious ..... 16. vulcanica
            gg. Flowers dioecious
              h. Leaves remotely serrate ..... 17. rhexioides
              hh. Leaves closely serrate-crenulate crenulate ..... 18. gracilis n.sp.
          ff. Leaves ovate ..... 19. dauciodora

ee. Peduncles shorter than the petioles
f. Leaves less than 4.5 cm. long ..... 20. falcata
ff. Leaves more than 4.5 cm. long .....
g. Cystoliths on upper surface mainly punctiform
h. Leaves ovate or ovate-lanceolate, at least 3 cm. broad .....21. irrorata
hh. Leaves narrowly elliptic, less than 3 cm. ~~long~~ broad 22. mexicana
gg. Cystoliths on upper surface fusiform or linear
h. Margin of leaves crenate-serrate; leaves becoming black when dry .....23. quichensis
hh. Margin of leaves sharply serrate; leaves remaining green when dry .....24. tuerckheimii
dd. Stem or leaves pubescent
e. Peduncles longer than petioles
f. Leaves pilose on upper surface with white pellucid hairs .....
g. Peduncles 2-4 cm. long .....25. pubescens
gg. Peduncles 5-6 cm. long .....26. longipes
ff. Leaves glabrate on upper surface, or pubescent on the nerves only .....
g. Leaves more than 4 cm. long, ovate-elliptic .....
h. Leaves rounded at base .....27. acuminata
hh. Leaves cuneate at base .....
i. Peduncles densely pubecsent near apex .....28. trichopes n. sp.
ii. Peduncles glabrous
j. Leaves long attenuate; cystoliths all punctiform .....29. pittieri n. sp.
jj. Leaves merely acute; cystoliths on upper surface of leaves becoming fusiform near base of blade .....30. pteroclada
gg. Leaves less than 2 cm. long, rotund-rhombic .....31. auriculata
ee. Peduncles shorther than petioles
f. Leaves 1 cm. or less long
g. Leaves round-ovate, crenate; flowers monoecious .....32. nana
gg. Leaves elliptic-ovate; flowers dioecious .....33. scrobiculata
ff. Leaves more than 1 cm. long
g. Mature leaves 3-5 cm. long 34. pumila
gg. Mature leaves less than 3 cm. long .....35. lundii

Throughout ~~Botanical~~ literature treating of the flora of western South America contains frequent references to the collections of William Lobb, ~~of~~ one fact stands out above all others in connection with the collection of Lobb's specimens: a large number of ~~species~~ well-known ~~Bolivian~~ species are reported to occur in Colombia solely on the basis of Lobb specimens, which otherwise are not known to occur ~~on~~ north of Peru or of southern Ecuador.

An explorer for the horticultural firm of James Veitch & Sons.

All of the leaves entire.

Leaves 1-nerved or nerveless.

Stem succulent, often becoming shrubby; leaves orbicular to obovate, longer than broad. . 1. P. microphylla.

Stem not succulent, filiform; leaves round-deltoid, nearly broader than long. . . . . 2. P. perniarioides.

Leaves 3-nerved.

A>

Leaves 1 to 3 cm. broad, thin, minutely ciliate, the cystoliths on upper surface linear or fusiform. . . 3. P. parietaria.

Leaves 3 to 5.5 cm. broad, thick, glabrous, the cystoliths on upper surface stellate-punctiform.. . . 4. P. riparia.

Leaves (at least the larger of a node) not entire.

Leaves 4 to 6-verticillate. . . . . 5. P. senarifolia.

Leaves in pairs.

Leaves pinnately 1-nerved.

Larger leaf crenate to the middle, the base equal. 6. P. pleuroneura.

Larger leaf 3-toothed at the apex, the base unequal. 7. P. tridentata.

Leaves 3-nerved.

Leaves of a node dissimilar or very unequal, the larger more than twice the size of the smaller; plants glabrous throughout.

Smaller leaf less than 1.5 cm. long.

Larger leaf more than 3 cm. broad. 8. P. ecbolophylla.

Larger leaf less than 3 cm. broad.

Leaves cuneate at base; peduncles shorter than the petioles. . . . . 9. P. pansamalana.

Leaves rounded at base; peduncles longer than the petioles. . . . . 10. P. chiriquina.

Smaller leaf more than 1.5 cm. long.

Leaves denticulate in upper third only.

11. P. caudata.

Leaves crenate or serrate nearly to base.

Staminate spikes subsessile, the peduncles less than 1 cm. long; leaves incurved-crenulate.

12. P. costaricensis.

Staminate ~~spikes~~ heads globose, on slender peduncles, more than 1.5 cm. long; ~~leaves serrate~~.

Stipules 5 mm. long, obtuse, persistent; cystoliths present on lower surface of leaf.

13. P. boquetensis.

Stipules 2 mm. long, acute, deciduous; cystoliths absent on lower surface of leaf.

14. P. purulensis.

Leaves of a node similar, equal or the larger not more than twice the size of the smaller; plants glabrous or pubescent.

a. Stem and leaves both glabrous.

Peduncles of pistillate heads longer than the petioles.

Leaves broadly ovate or suborbicular; staminate heads 2 to 5-flowered, their peduncles shorter than the petioles. . . . . 15. P. dauciodora.

Leaves elliptical; staminate heads, more than 5-flowered, their peduncles longer than the petioles.

16. P. gracilipes.

Peduncles of pistillate heads shorter than the petioles.

Leaves narrowly lanceolate, less than 1.5 cm. broad.

17. P. cookii.

Leaves ovate to elliptic, more than 1.5 cm. broad.

Cystoliths on upper surface all stellate-punctiform.

Stipules deltoid, obtuse, 1 to 2 mm. long; leaves thickened at margin. . . . . 4. P. riparia.

Stipules lanceolate, acute, 3 to 5 mm. long; leaves not thickened at margin. 18. P. irrorata.

Cystoliths on upper surface of leaves not stellate-punctiform, all linear or fusiform, or fusiform and punctiform intermingled.

Leaves coarsely crenate-serrate or serrate at least four-fifths their length from the apex.

Cystoliths on upper surface both fusiform and punctiform, those on lower surface very numerous; nerves light-colored. . 19. P. pallida.

Cystoliths on upper surface all linear, wanting on lower surface; nerves dark.

20. P. quickensis.

Leaves ~~minutely~~ finely serrulate, the lower ~~half~~ third entire.

21. P. tuerckheimii.

[aa. Stem or leaves pubescent.

Peduncles of pistillate heads longer than the petioles.

Insert B

Leaves pilose with white, pellucid hairs on upper surface.

Stem pubescent; pistillate ~~heads~~ reflexum diffusely

Stem erect; staminate
heads borne in axils
of lower leaves; leaves
rounded or subcordate
at base . . . . . 27. P. fimbriata.

Stem decumbent; staminate
heads borne at leaf-
nodes along rooting portion
of stem; leaves narrowed
at base . . . . . 28. P. stoloniger.

D

Segments of staminate
~~flowers~~ flowers minute, glabrous,
filiform . . . 25. P. plantaginea.

Segments of staminate
flowers linear, connate;
. . . 26a. P. fasciata.

~~Plant~~ monoecious; achene

Plant ~~monoecious~~

~~ovate~~ ovate, acute, tuberculate.

. . . . . P. pittieri.

Plant dioecious; achene

suborbicular, obtuse,

tuberculate . . . P. stanleyi.

Leaves glabrous on upper surface.

~~Leaves.~~

Leaves elliptic or ovate-elliptic or oblong, usually crowded at top of stems, tapering to a sessile or subsessile base; plants dioecious

~~25. P. plerisiolada.~~

and D

Leaves ovate or lanceolate ovate, long-petioled, usually rounded or subcordate at base. plant monoecious or ~~rarely~~ dioecious.

Plant dioecious, the staminate and pistillate inflorescences similar, borne at apex, paniculate.

26. P. ascensionis.

Plants monoecious, rarely dioecious; staminate inflorescence ~~an~~ compact, short-pedunculed cymes at lower ~~nodes~~, the pistillate ~~inflorescence~~ in diffuse panicles at apex.

27. P. floridana.

(81)

branched; achenes 0.5 mm. long, or less. . . 22. P. pubescens.

Stem glabrous; pistillate ~~heads~~ inflorescence subglobose; achenes 0.6 to 1 mm. long. 23. P. auriculata.

Leaves glabrous on upper surface.

Leaves rounded or subcordate at base. 24. P. pittieri.

Leaves ~~acute~~ tapering to a short petiole at base. 25. P. ptericlada.

Peduncles of pistillate heads shorter than the petioles. . . 26. P. hyalina.

~~Plants essentially glabrous throughout~~

Plants with stems and under surface of leaves densely pubescent

Larger leaf candate-acuminate, 10 to 12-toothed on each side, the petioles slender, about 1 cm. long ..... 9. P. centrademoides.

Larger leaf merely acuminate, 14 to 16-toothed on each side, sessile or subsessile. 10. P. ~~pacamensis~~ seemannii.

Plants ~~essentially~~ glabrous throughout.

NG = form glaucescente

Pilea longiloba Killip, sp. nov.

Stem reflexed, at length suberect, up to 2.5 cm. long, sparsely strigillose with hyaline hairs, copiously covered with minute lineate cystoliths; stipules ovate-orbicular, 3 to 5 mm. long, persistent; petioles 0.5 to 1.5 cm. long, sparsely strigillose; leaves opposite unequal, ~~to~~ ovate or ovate-lanceolate (the lower suborbicular), 1 to 5 cm. long, 1 to 2.5 cm. wide, acute or acuminate, subcuneate at base, coarsely serrate (teeth obtuse), ~~subtriplinerved~~ nearly to base (lateral nerves extending nearly to mid-margin), membranous, ~~dull~~ dark green and densely hyalino-strigose above, paler and less densely strigose beneath; inflorescences axillary, dioecious; staminate flowers in few-flowered cymes, the peduncles slender, up to 3 cm. long, the pedicels 2 to 4 mm. long; perianth 2 to 2.5 mm. wide, greenish distally, white proximally, the lobes filiform, 1 to 1.5 mm. long; anthers about 1 mm. long, white; pistillate inflorescence not seen.

Type in the U. S. National Herbarium, no. , collected in wet forest, Cerro de las Vueltas, Provincia de San José, altitude 2700-3000 meters, December 29, 1925, by P. C. Standley and J. Valerio (no. 43765). ~~No. 43796 of this series~~ This species is also represented by no. 43796 of this series, from the same locality.

Pilea longiloba bears a ~~close~~ general resemblance to P. pallax Wedd., an Andean plant occurring in Colombia and Ecuador, differing in triplinerved, not 1-nerved leaves, longer and more slender ~~petio~~ peduncles and pedicels, and an essentially glabrous inflorescence.

2. Pilea Lindl. Coll. Bot. pl. 4. 1821.

Adicea Raf. Anal. Nat. 179. 1815 * (hyponym).

Herbs, often slumoby at the base, the stems creeping or usually erect, simple or branched; leaves in pairs or rarely verticillate, those of a node equal or unequal, entire or toothed, 3-nerved or nerveless; flowers usually bearing more or less numerous capitellate; in apillary cymes, monoecious or dioecious; the staminate with a 4-parted perianth and a rudimentary ovary, the pistillate with a 3-parted perianth, the segments usually unequal, the middle the largest each subtending a scale-like staminode; stigma sessile, penicillate; achene compressed, ovate or suborbicular.

All of the leaves ~~all~~ entire.

Leaves 1-nerved or nerveless.

Stem succulent, often becoming clumbby; leaves orbicular to obovate, longer than broad ——————— 1. P. microphylla.

Stem not succulent, filiform; leaves round-deltoid, broader than long. 2. P. hernariaoides

Leaves 3-nerved.

Leaves 1 to 3 cm. broad, thin, the cystoliths on upper surface linear or fusiform 3. P. parietaria

Leaves ~~3.5~~ 3 to 5.5 cm. broad, thick, the cystoliths on upper surface stellate-fusetiform 4. P. rifaria

Leaves (at least the larger ones) not entire.

Leaves 4 to 6-verticillate 5. P. zonarifolia

Leaves in pairs.

~~Larger leaf~~

Leaves pinnately 1-nerved.

Larger leaf crenate to the middle, the base equal 6. P. pleuroneura.

Larger leaf 3-toothed at the apex, the base unequal 7. P. tridentata

Leaves 3-nerved

Leaves of a node dissimilar or very unequal, the larger more than twice the size of the smaller; plants glabrous throughout.

Smaller leaf less than 1.5 cm. long.

Larger leaf more than 3 cm. broad. 8. P. ecbolophyela.

Larger leaf less than 3 cm. broad.

Leaves cuneate at base; peduncles shorter than the petioles. 9. P. panamalana.

Leaves rounded at base; peduncles longer than the petioles. 10. P. chiriquina.

Smaller leaf more than 1.5 cm. long.

Leaves denticulate in upper third only. 11. P. candata.

Leaves crenate or serrate nearly to base.

Staminate spikes subsessile, the peduncles less than 1 cm. long; leaves recurved-crenulate. 12. P. costaricensis

Staminate spikes on slender peduncles, more than 1.5 cm. long; leaves serrate.

Stipules 5 mm. long, obtuse, persistent;
cystoliths present on lower surface
of leaf 13. P. boqueteensis

Stipules 2 mm. long, acute, deciduous;
cystoliths absent on lower surface
of leaf. 14. P. perulensis.

Leaves of a node similar, equal or
the larger not more than twice the
size of the smaller; plants glabrous or pubescent.
Stem and leaves both glabrous. (longer) (the)
Peduncles of pistillate heads ~~longer~~ than petioles.
Leaves broadly ovate to suborbicular;
staminate heads 2 to 5-flowered,
~~as long as~~ shorter than the petioles
thirpeduncles ~~less than 1 cm. long~~. 15. P. dawsoniana.

Leaves elliptical; staminate heads,
more than 5-flowered, thirpeduncles
~~more than~~ longer than the
petioles. 16. P. gracilipes.

Peduncles of pistillate heads
shorter than the petioles.
Leaves narrowly lanceolate,
less than 1.5 cm. broad. 17. P. cookii.

Leaves ovate to elliptic, more
than 1.5 cm. broad.
Cystoliths on upper surface
all stellate-punctiform.
Stipules deltoid, obtuse, 1 to 2 mm.

long; leaves thickened at
margin. 4. P. riparia

Stipules lanceolate, acute,
3 to 5 mm. long; leaves not
thickened at margin. 18. P. irrorata

Cystoliths on upper surface ~~0~~
~~0~~ leaves not stellate-
punctiform, all linear or fusiform,
or fusiform and punctiform
intermingled.

Leaves coarsely crenate-serrate or
serrate at least four-fifths
their length from the apex.
Cystoliths on upper surface
both fusiform and punctiform,
those on lower surface very
numerous; nerves light-
colored. 19. P. pallida,

Cystoliths on upper surface
all linear, wanting on
lower surface; nerves dark.
20. P. quichensis

Leaves minutely serrulate, the
lower half entire. 21. P. turckheimii

Stem or leaves pubescent.

Pedunculos & pistillate heads
longer than the petioles.

Leaves pilose with white,
pellucid hairs on upper
surface.

Stem pubescent; pistillate heads
diffusely branched;
achenes 0.5 mm. long,
or less. 22. P. pubescens.

Stem glabrous; pistillate
heads subglobose;
achenes 0.6 to 1 mm.
long. 23. P. auriculata.

Leaves glabrous on upper
surface.

Leaves rounded or subcordate
at base. 24. P. pitteri.

Leaves acute at base
25. P. pteridaea.

Pedunculos of pistillate heads
shorter than the petioles.
26. P. hyalina.

1. Pilea microphylla (L.) Liebm. Vidensk. Selsk. Skr. ser. 5, 2:296. 1851.

Parietaria microphylla L. Syst. ed 10. I, ed. 2:1305. 1759.

Urtica microphylla Sw. Vet. Handl. Stockh. 8:66, 1787.

Urtica trianthemoides Sw. " " " 8:68. 1787.

Parietaria serpyllifolia Poir. Lam. Ency. 5:116. 1804.

Urtica serpyllacea H.B.K. Nov. Gen. & Sp. 2:37. 1817.

Urtica thymifolia H.B.K. Nov. Gen. & Sp. 2:37. 1817.

Urtica callitrichoides H.B.K. Nov. Gen. & Sp. 2:40. 1817.

Pilea muscosa Lindl. Coll. Bot. pl. 4. 1821.

Pilea trianthemoides Lindl. Coll. Bot. pl. 4. 1821.

Urtica portulacina Sprang. Syst. 3:838. 1826.

Pilea serpyllacea Liebm. Vidensk. Selsk. Skr. ser. 5, 2:296. 1851.

Pilea callitrichoides Schlecht. Linnaea 27:496. 1854.

Pilea pepliodifolia Schlecht. Linnaea 27:496. 1854.

Pilea microphylla trianthemoides Engl. Bot. Jahrb. 15:41. 1892.

Pilea microphylla longifolia Wedd. DC. Prodr. 16¹: 106. 1869.

Pilea microphylla portulacoides Wedd. DC. Prodr. 16¹: 106. 1869.

Pilea serpyllifolia Wedd. DC. Prodr. 16¹: 107. 1869.

Adicea microphylla Kuntze Rev. Gen. 2:622. 1891.

Adicea microphylla trianthemoides Kuntze Rev. Gen. 2:622. 1891.

Guatemala; El Salvador; ~~Co~~ Nicaragua; Costa Rica; Panama. Throughout tropical America. Often cultivated. ~~as lace plant~~"

Herbaceous, often becoming shrubby, 4 to 30 cm. high, glabrous; stems diffusely branched, ~~woody~~ ~~more or less succulent~~; leaves oblong, obovate, or suborbicular, obtuse, tapering to a petiole 0.5 to 5 mm. long, those of a pair ~~unequal~~ unequal, the larger 2 to 9 mm. long, 0.7 to 1.5 mm. broad, the smaller 1 to 2 mm. long, 0.7 to 1.5 mm. broad, the upper surface transversely striate with ~~leaves~~ linear ~~leaves~~ cystoliths; heads androgynous or unisexual, short-pedunculed or often sessile, shorter than the leaves; flowers white, tinged with red; achene ovate, 0.5 mm. long.

2. Pilea herniarioides (Sw.) Lindl. Coll. Bot. 1821.
Urtica herniarioides Sw. Vet. Handl. Stockh. 8:64. 1787.
Pilea deltoidea Liebm. Vidensk. Selsk. Skr. sér. 5, 2:298. 1851.
Pilea microphylla herniarioides Wedd. DC. Prodr. 16v:106. 1869.
Guatemala; Costa Rica. Mexico, West Indies.

with 3 to 5 crenations to the side, the lower half entire, cuneate, tapering to a petiole 3 to 4 mm. long, the smaller elliptical, 1 to 1.2 ~~mm~~ cm. long, 3 mm. broad, obtuse, entire or obsoletely lobed at the apex, cuneate at the base, sessile, both kinds bearing on the upper surface linear cystoliths 0.2 mm. long; dioecious; pistillate cymes fascicled at the ends of slender peduncles.

3) Pilea parietaria (L.) Blume, ~~Herb.~~ Ann. Mus. Bot. Lugd. Bat. 2:48. 1856.

Urtica parietaria L. Sp. Pl. 985. 1753.

Urtica ciliaris L. Syst. ed 10, 2:1266. 1759.

? Pilea rubiaefolia Blume, Ann. Mus. Bot. Lugd. Bat. 2:49. 1856.

Adicea ciliaris Kuntze Rev. Gen. 2:622. 1891.

Guatemala; Costa Rica. West Indies, the type from Jamaica.

Suffrutescent or herbaceous; stems simple, glabrous; petioles glabrous or pilose, 0.5 to 2.5 cm. long, those of a pair subequal or one half as long as the other; leaves elliptical, ovate-lanceolate or rarely the lower broadly ovate, 2 to 9 cm. long, ~~1.5 to 3 cm. broad~~, acute or acuminate, rounded, subcordate, or occasionally acutish at the base, the upper surface glabrous or strigillose with pellucid

the cystoliths of the upper surface dense, stellulate-punctiform, those of the lower surface minute, linear and punctiform; those at the margin of both surfaces fusiform, more conspicuous; staminate cymes 4 to 4.5 cm. long, dichotomously branched; pistillate cymes short-peduncled or nearly sessile; achene narrowly ovoid, 1 mm. long, smooth.

broad, oblong-apatulate, 3-~~toothed~~ toothed at the apex (or the upper occasionally entire), tapering to a petiole 1 to 1.5 mm. long, the margins unequal at the base or the upper side shorter, the smaller leaves 3 to 4 mm. long, 2.5 mm. broad, ovate or suborbicular, obtuse, sessile, very unequal at the base, the upper side oblique, the lower side auriculate, the upper surface densely, the under surface sparsely, covered with narrowly fusiform cystoliths 0.4 to 0.5 mm. long; dioecious (or monoecious?); staminate cymes 2 to 3-flowered, the peduncles 2.5 mm. long, the pedicels 2 mm. long, the perianth ~~flowers~~ globose, 1.5 mm. in diameter, the tips of the segments acute, 0.3 mm. long; pistillate ~~female~~ cymes 3 to 4-flowered, the peduncles 1.5 mm. long; female flowers whitish, the middle perianth-segment elongate, 1.2 mm. long, the lateral segments 0.5 mm. long; achene narrowly oblong, 1 mm. long, 0.6 mm. broad, minutely roughened.

Type in the U. S. National Herbarium, no. 799669, collected near Cobán, Department of Alta Verapaz, Guatemala, 1500 meters altitude, November 7, 1907, by H. von Türckheim (no. II 2011).

8. Pilea ecbolophylla Donn. Smith, Bot. Gaz. 19: 10. 1894

Alta Verapaz, Guatemala (type locality, Río Dolores), along riverbanks at 350 meters altitude.

Rhizome 20 to 30 cm. long; stem erect, 30 to 35 cm. long; larger leaf of a pair obovate-elliptic or oblanceolate, 9 to 11.5 cm. long, 3 to 4.5 cm. broad, crenate-serrate to within 2 cm. from the base, cuneate, tapering to a petiole 1 to 1.5 cm. long, caudate-acuminate, the tip 2 cm. long, averaging 4 mm. in width, the smaller leaf narrowly oblong-lanceolate, 7 to 8 mm. long, 2 to 3 mm. broad incurved-crenate,

the petiole 1 mm. long; dioecious; pistillate
cymes

8. Herbaceous, often becoming shrubby, glabrous;
~~P.~~ Peperomia arbuscula Donn. Smith, Bot. Gaz.
19: 10. 1894.
Alta Vera Paz, Department of Guatemala (Río Dolores, ~~Dept. of~~), along
riverbanks at 350 meters altitude.

Glabrous; rhizome 20 & 30 cm. long; stems
erect, simple 30 to 35 cm. long; leaves 2 to 3
pair alternate, elliptical or oblanceolate, 4 to 11 long, 3 to 11 broad,
the largest 9 to 11 cm. long, average
acuminate, ~~to acute at~~ the base acute, ~~or~~ obtuse, rounded, crenate-
serrate to within 1-2 cm. from the base, the
petiole 1-1.5 cm. long; the smaller leaves
narrowly oblong-lanceolate, 7 to 8 mm. long,
2-3 mm. broad, undulate-crenate, ~~tapering~~ to a petiole 1 mm. long;
~~pedicels~~ peduncles axillary, 3 to 5 mm. long; achene
ovoid, 0.75 mm. long.

9. Piper panamalense Donn. Smith, Bot. Gaz. 19:
10. 1894.
Alta Vera Paz, Guatemala (type locality),
Panamá forest ~~(Dept. of Vera Paz)~~ in decayed,
mossy tree trunks at 1000 to 1200 meters.
Stem prostrate or ~~ascending~~ rooting, branches decumbent,
simple, leaves ovate-cordate, ~~to~~ except at the base
the nerves impressed beyond, the latter forming 1 cm. about the base, ~~of~~
the axils of the ~~petioles~~ surfaces pencil-form,
decurring linear at the margin and on the nerves,

(over, at bottom of page)

glaborous,
Stem repent, rooting at the base, ~~at the nodes~~, ascending, 30-40 cm. high, glaborous; leaves thick, entire or rarely ~~remotely~~ denticulate at the apex, the margin ~~thickened~~, ~~the~~ lanceolate, 2.5-2.5 cm. long, 3-5.5 mm. broad, oblong-elliptical, 8-13 cm. long, acuminate, the smaller obovate-elliptical 6 to 9 cm. long, 2.5-4 cm. broad, abruptly acuminate, the cyme with the upper surface densely stellulate-puncteform, those of the lower surface minute, linear, those at the margin puncteform, conspicuous; staminate cymes dichotomously branched 4-4.5 cm. long; pistillate cymes 1 cm. long; achene narrowly ovoid, 1 mm. long, smooth.

---

(9) the larger ~~leaves~~ (those of the upper ~~part~~ ~~of the stem~~) lanceolate ~~to~~ elliptical, 2.5-7.5 cm. broad, ~~to~~ 9 cm. long, obtuse, the smaller obovate or orbicular, 0.7-1.2 cm. long, 0.5-1 cm. broad; ~~flowers dioecious~~; monoecious or dioecious; staminate cymes borne on the lower naked portion of the stems, 8-9 mm. long; pistillate cymes axillary, 3-4 mm. long; achene oblong, 0.8 mm. long, smooth.

Herbaceous, prostrate or creeping; stems 2 to 10 cm. long; leaves 1.5 to 8 mm. long, 2 to 9 mm. broad, obtuse, abruptly tapering to the petiole, the upper 4 rosulate, the margin and upper surface pilosulous or rarely glabrescent throughout; heads sessile in the axils of the upper leaves.

5) Pilea serpyllifolia Dorm. Smith, Bot. Gaz. 19:12. 1894.

Guatemala (type ~~from~~ locality, Chiul, Department of Quiché), at 2500 meters altitude.

Glabrous; stem succulent, 20 to 30 cm. high, rooting at the base, 6-winged; leaves 4 to 6-verticillate, obovate-spatulate, 2 to 9 mm. long, 3 to 4 mm. wide, tapering to a petiole 1 to 2 mm. long, incurved-crenate above the middle, the crenations 3 to a side, the upper surface transversely striate with ~~r~~ranorely fusiform cystoliths.

7) Pilea tridentata Killip, sp. nov.

Herbaceous or suffrutescent, 40 cm. high or more, glabrous throughout; stem woody below, sulcate; the branches alternate; stipules deltoid-ovate, 0.5 mm. long, deciduous; leaves penni-nerved with 6 to 8 pairs of nerves, opposite, those of a node conspicuously unequal and dissimilar, the larger 5 to 8 mm. long, 3 to 4 mm.

Herbaceous; stems ~~fibrous~~ 2 to 10 cm. long; leaves

hairs, bearing minute linear cystolithes, the lower surface glabrescent or pubescent on the nerves, sparingly or densely covered with conspicuous linear or fusiform cystolithes, the margin usually more or less densely ciliate; cymes paniculately branched or racemose, 1.5 to 10 cm. long, 1 to 4 in an axil, the clusters androgynous, separate; achene ovoid, 0.5 mm. long, smooth.

This species shows considerable variation in degree of pubescence, density of the cystolithes, and size of the leaves. Central American specimens apparently are more glabrous than those from the West Indies.

99 Pilea riparia Donn. Smith, Bot. Gaz. 19:111. 1894.

Alta Verapaz and Baja Verapaz Guatemala (type locality, Panzamalá, Department of Verapaz) at altitudes of about 1000 meters.

Glabrous; stem repent at the base, ascending, 30 to 40 cm. high; leaves thick, entire or rarely serrulate toward the apex, tapering to a petiole 0.5 to 2.5 cm. long, the margin thickened, the larger of a pair oblong-elliptical, 8 to 13 cm. long, the smaller obovate-elliptical, 6 to 9 cm. long, 2.5 to 4 cm. broad, abruptly acuminate,

10. Piper chiricanum Killip, sp. nov.

Glabrous; suffrutescent; stem decumbent and rooting at the base, the branches erect, 35 & 60 cm. high, simple; stipules deciduous; leaves 3-nerved, the nerves extending to the apex, dark green above, paler beneath, the cystoliths of the upper surface punctiform, — mm. long, those of the lower surface linear, the petioles 3 & 4 mm. long, the blades ovate-acuminate, those of a pair very unequal, the larger oblong-lanceolate or oblanceolate 4 & 5 cm. long, 1.2 to 2 cm. broad, caudate-acuminate, the margins unequally auriculate at the base, the lower auricle longer than the upper, subacuminate, the smaller ovate or ovate-lanceolate, 1 to 1.3 cm. long, 0.6 to 0.9 cm. broad, acute, subcordate at the base, the petiole 1 mm. long; flowers dioecious; the pistillate borne in a compact flat topped cyme 9 to 11 mm. broad, the peduncle 8 & 10 mm. long, the division of the perianth subequal 0.9 mm. long, 0.5 mm. broad, bearing linear cystoliths on the outer surface.

Type in the U. S. National Herbarium, no. 1010199, collected in the humid forest along the upper Caldera River, 8 miles north of El Boquete, Province of Chiriquí, Panama, at an altitude of 1650 meters, February 11, 1918, by E. P. Killip (no. 3546).

This species is to be distinguished from Piper panamalana by the longer peduncles of the pistillate cymes, by the subauriculate, rather than cuneate leaf-bases, and by its erect, rather than procumbent, habit.

This species is to be distinguished from Pilea pleuroneura chiefly by the shape of its leaves. In P. tridentata the larger leaves are 3-toothed at the apex and the smaller leaves entire, the margins ~~of~~ particularly of the smaller leaves, being unequal at the base. In P. pleuroneura the larger leaves are crenate from the middle to the apex with 5 or 6 crenations to the side, the margins being equal at the base. The cystoliths of P. pleuroneura, moreover are much smaller than those of P. tridentata and confined to the upper surface.

(10) Pilea pleuroneura Donn. Smith, Bot. Gaz. 19:12. 1894.

~~Stems rooting at woody base, ascending, 30 to 40 cm. high;~~

Guatemala (type locality, Panzamalá, Department of Alta Verapaz) at 1175 meters altitude.

Stem rooting at woody base, ascending, 30 to 40 cm. high; leaves of a pair slightly unequal, the larger lanceolate, 1.5 to 2.5 cm. long, 3 to 4 mm. broad, the upper half crenate

5 Sepacuite, Department of Alta Verapaz, Guatemala, April 14, 1902, by O. F. Cook and R. F. Griggs (no. 609).

The texture and venation of the foliage of this species resembles that of Pilea riparia Hegewaldia, however, a much greater diversity between the size the leaves are, however, longer, the lips are shallowly, but distinctly and sharply, denticulate, and the margins are not thickened, and the cystoliths are of uniform shape, not becoming enlarged at the margin of the blade.

of the leaves of a pair than in the case of Pilea riparia. The larger leaves, moreover, are much longer, the tips etc.

12. P. Costaricensis

next page

than cuneate leaf-bases, and by its erect, rather than prostrate, habit.

11.) Pilea candata Killip sp. nov.

Glabrous throughout; stem erect, simple; stipules deltoid, ~~ob~~ 0.7 mm. long, 0.8 mm. broad, acute; leaves thickish, dark-green above, pale beneath 3-nerved, reticulately veined, the nerves and veins impressed and conspicuous on the ~~under surface~~ beneath, cuneate at the base, ~~the cystoliths~~ (beaming) (family) on the upper surface, ~~punctiform~~, dense, ~~those~~ cystoliths sparely on the lower surface, ~~punctiform~~, ~~space, or linear on the nerves~~, punctiform cystoliths, ~~those~~ those of a pair conspicuously unequal, the larger lanceolate-elliptic, 10 to 15 cm. long, 2 to 4 cm. broad, caudate-acuminate, the tips 2 to 3 cm. long, ~~crenulate~~ denticulate, ~~crenulate~~, the ~~crenulations~~ teeth 3 to 6 to a side, acute, 0.4 mm. long, or less, the margin otherwise entire, the petiole 1 to 2.5 cm. long, channeled, swollen at the base, the smaller leaves narrowly ~~elliptic~~ lanceolate-elliptic, 3 cm. long 0.8 to 1 cm. broad, acuminate, entire or obsoletely serrulate at the apex, the petiole 2 to 3 mm. long; ~~flowers~~ dioecious?; staminate ~~flowers~~ heads in dense, axillary glomerules, ~~the~~ globose, 0.8 mm. in diameter, the tips of the segments 0.2 mm. long, acute; pistillate flowers not seen.

Type in the U.S. National Herbarium, no. 408318, collected at Secoyoati, near the Pinca

than cuneate leaf-bases, and by ~~into erect~~, rather than ~~prostrate~~ habit.

12. Pilea costaricensis Donn. Smith, Bot. Gaz. 20: 294. 1895.

~~Costa~~

Provinces of Cartago and San José, Costa Rica (type locality, Estrella, Province of Cartago, ~~Costa~~ Rica) at ~~an~~ altitudes of 1300 to 1500 meters.

~~Glabrous~~; ~~Stems~~ 30 to 60 cm. high, branching toward the summit; petioles 2 to 4 cm. long; leaves ~~obtuse~~ obtusish ~~succulent-crenulate~~, acute or ~~rarely~~ obtusish at the base, the larger of a pair oblong-elliptic, the cystoliths ~~the upper surface~~ linear, 0.6 mm. long, more abundant ~~beneath~~ on the lower surface, 10 to 18 cm. long, 4 to 6 cm. broad, ~~cuneate~~-caudate-acuminate, the tip 1 to 1.5 cm. long, ~~the petiole 2 to 2.5 cm. long~~, the smaller oblong-lanceolate, 2 to 2.5 cm. long, 1 to 1.3 cm. broad; ~~the petiole 2 to 4 mm. long~~; ~~flowers~~ dioecious; staminate flowers in axillary, globose clusters or in short-pedunculed flat-topped cymes, 2 to 2.5 cm. broad; the anthers white, exceeding the segments; ~~flowers cymose~~ ~~flowers cymes~~ pistillate flowers in capitate cymes, 5 to 6 mm. broad; achene oval, 0.5 mm. long, smooth.

13. Pilea boquetensis Killip, sp. nov.

~~Herbs~~ Glabrous throughout; herbaceous; stem erect, branched, densely covered with linear

cystoliths, particularly at the nodes; stipules oblong or orbicular, ovate, 5 mm. long, 3.5 mm. broad, obtuse, persistent, greenish-yellow, mottled with red; leaves dark green above, paler beneath, densely covered on both surfaces with linear cystoliths 0.3 mm. long, coarsely serrate, the teeth sacculate, 2 to 3 mm. long, those of a pair conspicuously unequal, the larger lanceolate, acuminate, unequilaterally acute at the base, 3 to 5.5 cm. long, 1.8 to 2.4 cm. broad, the petiole 1.5 to 2 cm. long, the smaller leaves ovate or ovate-lanceolate, acute, subrotund and unequilateral at the base, 1.5 to 2 cm. long, 1/3 to 1.5 cm. broad, the petiole 4 to 5 mm. long; monoecious, the staminate and pistillate heads often borne at the same axil; staminate flowers densely clustered in a globose head, 9 to 10 mm. in diameter, globular, 2 mm. in diameter, the tips of the segments acute, erect, as long as the body; pistillate flowers borne on a peduncle 5 to 7 mm. long, loosely clustered in a subglobose head 4 to 5 mm. in diameter, the perianth segments bearing linear cystoliths without, acute, subequal, the middle segment 0.9 mm., the lateral 0.8 mm. long; achene broadly ovate or suborbicular, 1 mm. long, 0.9 mm. broad.

Type in the U. S. National Herbarium, no. 1010196, collected in dense forest along the Rio Caldera, 7 miles north of El Boquete, Province of Chiriquí, Panama, at an altitude of 1650 meters, February 11, 1918, by E. P. Killip (no. 3543).

This species is characterized by relatively large, persistent stipules and by the long caudate tips of the male perianth segments. The foliage ~~bears~~ more closely resembles that of Pilea pansamalana than that of any other species. The serrations, however, are much coarser and the cystoliths on the upper surface are linear rather than punctiform.

14) Pilea purulensis Donn. Smith, Bot. Gaz. 46:115. 1908.

~~Baja~~ Guatemala, ± (type locality, near Purulá, Department of Baja Verapaz, Guatemala), in mountain forests at 1500 to 1800 meters altitude.

~~Glabrous~~; Stem simple, 35 ~~meters~~ cm. high, or more; striate on the upper surface with minute linear cystoliths; leaves ^ serrate, the serrations ^ mucronulate, 1 to 3 mm. long, ~~bearing~~ on the upper surface only, ~~minute linear cystoliths~~ 0.2 mm. long or less, the largest ^ leaf of a pair oblong-lanceolate, 10 to 15 cm. long, 4 to 5.5 cm. broad, long-acuminate, obtuse or acutish at the base, the petiole 1.5 to 2.5 cm. long, the smaller ~~leaf~~ ovate-lanceolate, acuminate, rebrotund at the base, the petiole 1 to 2 mm. long;

Lord Howe's Island

Todea (Leptopteris) moorei Baker

Hooker's Icon. Plant. Vol. 7. Plate 1697

(5)

ciliaria Wedd.

a

bb.

cc

d

ee

Tillandsia Geissei Philippi

Gartenflora xxxviii - 369 - 371 - F. 1302.

Bull. Torr. Bot. Club - xviii - 69.

Microphylla

a

b

Tillandsia unilateralis Baker.

Journ. Bot. **26**: 105. 1888.—Brazil.

(12)

deltoidea Liebm lc 298 CR ②
= hemianoides

a
b

dioecious; staminate flowers in dense, globose heads 0.7 to 1.3 cm. in diameter, the peduncles slender, 2 to 2.5 cm. long; pistillate flowers in lower, flat-topped cymes 0.5 to 0.7 cm. broad, the peduncles 0.5 to 1 cm. long; achene ovate, 0.9 mm. long, the apex slightly curved.

15.

See next page

the cystoliths of the upper surface dense, stellulate-punctiform, those of the lower surface minute, linear, those at the margin of both surfaces fusiform, conspicuous; staminate cymes dichotomously branched, ~~4 to 4.5 cm.~~ the peduncles 2.5 to 3 cm. long; pistillate

(16)

Pilea gracilipes Killip, sp. nov.

Herbaceous; glabrous throughout; stems repent, simple, 8 to 40 cm. high; stipules triangular-ovate, acute, 1.2-1.5 mm. long, 1-1.2 mm. broad; leaves ovate-lanceolate or elliptic, 1 to 8 cm. long, 0.7 to 2.5 cm. broad, acuminate, rounded or acutish at the base, crenate-serrate, the teeth 0.5 to 1 mm. long, acute or often mucronulate, (bright green above, pale, often glaucescent beneath), ~~the~~ those of a pair similar in form, subequal in size or the smaller three-quarters as long as the larger, the petioles of the smaller 0.4 to 1.5 cm. long, those of the larger 2 to 2.5 times as long; ~~staminate~~ monoecious or dioecious, the staminate & pistillate spikes often arising in the same axil; staminate spikes simple, consisting of a single glebose, 12 to 20 flowered head 5 to 7 mm. in diameter, the peduncles 2-3.5 cm. long, the flowers globular, 2 mm. in diameter, the tepals of the ~~sequents~~ minute, ~~barely~~ 0.1 mm.

15. Tidea

Tidalcia dauciodora Wedel. Ann. Lei. Nat.

26:1. 3, 18:2-2 3. 18

(Insert bottom of this page)

Stems erect, at length erect, slender, upper ~~part~~ stems repeat, stipules triangular-ovate, 1–3 mm. long; leaves 5–7 pairs (Oranely up to 3.5 cm. long 0.5 to 2 cm. long, 0.4 to 1.0 cm. broad, the largest leaflets 0.5–1.5 cm. long) acutish, ~~no~~ undulate or subcrenulate at the base, crenate-serrate, the teeth manally mucronate, subimbricate; the cystolithes ~~of the upper surface~~ dark green above, ~~fusiform, 0.4 mm. long~~, blue beneath, bearing on both surfaces fusiform cystoliths 0.4 mm. long; inflorescence of ~~a single~~ spicate dichasia; staminate ~~flowers~~ consisting in a single cluster, ~~heads~~ 2 to 5-flowered, on the peduncles filiform, 3 to 6 mm. long; pistillate ~~spikes~~ spikes simple or decompound, consisting in 2 to 6 globose clusters 2.5 to 3 mm. in diameter, 8 to 20-flowered; the middle segment of the perianth larger than the lateral, hooded; achene ovate, 1 mm. long.

Adicea dauciodora Kuntze ex Rev. Gen. 2:622. 1891.

Guatemala. West Indies, Colombia, Venezuela, Bolivia, Peru.

(over)

~~long~~ gracilipes, the upper portion dark green on the outside, covered with linear cystoliths, the lower portion yellowish, the tips of the segments minute barely 0.1 mm. long; pistillate spikes ~~simple or~~ decompound, or paniculately banded, rarely simple, ~~3-8-headed~~, consisting in 5 to 15, 8 to 20-flowered heads, the peduncles filiform or linear, 2 to 5 cm long, usually much exceeding the petioles, rarely reduced to a length of 4 mm., the ~~flower~~ middle segment of the perianth linear-oblong, 1 mm. long, 0.4 mm. broad, the tip hooded, the lateral segments ~~broadly ovate~~ suborbicular, 0.5 mm. long, 0.7 mm. broad, obtuse; achene

Type in the U. S. National Herbarium, no. 675809, collected on a wet brushy slope, in the humid forest around Los Siguas Camp, southern slope of Cerro de Horqueta, Province of Chiriqui, Panama, at an altitude of about 1700 meters, March ~~19~~ 1911, by William R. Maxon (no. 5426)

lanceolate-ovate (gracilipes) 1.1 mm. long, 1 mm. broad at the base, acute.

Type etc. ~~add'l spec. ex.~~ must back of this page

~~This species~~ see

Much of the material cited above was distributed as Pilea auriculata, a species having smaller, rotund-rhombic, ciliate leaves, pilose on the upper surface, and auriculate middle segments of the pistillate flowers. It more closely resembles Pilea dancidora, from which it is to be differentiated by its larger, lanceolate-ovate leaves, its long-peduncled staminate heads, and its ~~[illegible]~~ more erect habit.

(1) ~~[illegible]~~ those of a pair similar in shape, subequal in size or the one four-fifths the length of the other, ~~the petiole of the shorter [illegible] the length of that of the longer,~~

~~add about [illegible]!~~

3-nerved to the apex

(2) ii 0.6 to 1 cm. in diameter, the peduncles very slender, filiform 3-4 cm. long, the pedicels 1 to 1.5 mm. long, the flowers globular, 2 mm. in diameter, the teeth 0.4 mm. long; pistillate ~~[illegible]~~ the upper ~~portion~~ half green, ~~[illegible]~~ densely covered with linear cystoliths ~~the~~ on the outside, the lower half white, destitute of cystoliths; pistillate flowers congested in sessile cymes 3 to 5 mm. broad, the ~~middle pericarp segment linear oblong~~ segments marked with linear cystoliths without, the middle segment ~~[illegible]~~ linear-oblong, 0.9 mm. long, the lateral segments ovate, 0.6 mm. long, 0.4 mm. broad, acute, achene oblong 1 mm. long, 0.7 mm. broad, acute, smooth.

18) Pilea irrorata Donn. Smith, Bot. Gaz. 19:11. 1894.

Guatemala (type locality, Río Samalá, Depat. of Retalhuleu) at ~~a~~ altitudes of 500 to 550 meters, pendent from cliffs. Mexico (Chiapas).

Herbaceous; glabrous throughout; stems stout, 30 to 60 cm. high; leaves ovate-lanceolate a broadly elliptic, 18 to 24 cm. long, 4 to 10 cm. broad, caudate-acuminate, subcuneate at the base, irregularly and shallowly crenate-serrulate above the middle; inflorescences cymose; staminate spikes densely flowered [illegible] the pedicels 4 to 5 mm. long,

Pilea cookii Killip, sp. nov.

17) ~~Herbs~~ Herbaceous, glabrous throughout; stems rooting at the base, erect, simple or few-branched, 40 to 45 cm. high; stipules deltoid, 1.8 mm. long, 0.7 mm. broad at the base, deciduous; leaves narrowly lanceolate, 4 to 10 cm. long, 0.8 to 1.2 cm. broad, acuminate, (narrowed to acuminate or suboordate base,) serrulate, the teeth acute, often mucronulate, 1 mm. long, the upper surface bearing very minute linear cystoliths less than 0.1 mm. long, the under surface ~~punctulate~~ the cystoliths 0.2 mm. long; staminate densely congested in globose heads,

19

Pilea pallida Killip, sp. nov.

Herbaceous; glabrous throughout, or the very young leaves puberulent on the undersides of the nerves; stems simple, 30 cm. high, or more; stipules lanceolate, 3 mm. long, 1.5 mm. broad, acute, densely striate without with linear cystoliths; petioles 1.5 to 4 cm. long, the pair unequal; leaves elliptical-lanceolate, 8 to 12 cm. long, 3 to 4 cm. broad, caudate-acuminate, the tip up to 2.5 cm. long, tapering ~~at the base~~ to the petiole, 3-nerved, the lateral nerves extending to the base of the caudate tip, serrate, the teeth obtuse, often mucronulate, 2 to 4 mm. long, the upper surface dark green, densely covered fusiform and punctiform cystoliths, the former up to 0.6 mm. long, the under surface pale, slightly silvery-lustrous; ~~b~~ dioecious; staminate subglobose flowers densely congested in sessile clusters 3 to 4 mm. in diameter in the axils of the lower leaves, the perianth conical, 1 mm. broad at the base, 1 mm. long, the tips of the segments 0.4 mm. long, acute; pistillate much-branched, flowers in rather loose, flat-topped cymes, shorter than the petioles, 0.8 mm. long, 10 to 12 mm. broad, in the axils of the ~~top~~ middle and upper leaves, the bracteen and the outer surface of the perianth densely striate with linear cystoliths, the middle perianth segment linear, obtuse, 0.9 mm. long, the lateral segments ovate, acute, 0.2 mm. long, the margin scarious; achenes ovoid, 0.9 mm. long, 0.8 mm. broad, acute, ~~black~~, wing-margined, the surface (over)

black, minutely papillose.

Type in the U. S. National Herbarium, no. 1036444, collected at Sibubi Falls, Sipaola Valley, Guatemala, June 6, 1918, by W. W. & H. E. Rowlee (no. 376).

This species is to be distinguished from the other short-pedunculed, glabrate species of this genus by its the two ~~woods~~ forms of cystolithes on the upper surface of the leaves, both being nearly equally numerous.

Pilea quichensis Donn. Smith, Bot. Gaz. 19:12. 1894. Guatemala (type locality, San Miguel Mepantán, Department of Quiché) at ~~herbaceous, glabrous throughout a tenacity pitosculous at the nodes;~~ herbaceous, Stems simple, 60 to 90 cm. high; leaves obliquely oblong-elliptic, 10 to 15 cm. long, 2.5 & 4 cm. broad, caudate-acuminate, serrate, the base acute, the cystolithes of the upper surface dark green (nearly black in drying, ~~opaque~~ covered with minute, linear cystolithes 0.2 mm. long, the under surface glaucescent, destitute of cystolithes; monoecious; staminate cymes in pairs, up to 1.8 cm. long, the flowers on spreading branches, the perianth-segments obtuse; pistillate cymes smaller, borne on the upper axils, ~~ovary~~ obtuse ~~elliptical~~.

Pilea Tuerckheimii Donn. - Smith, ~~Bot.~~ Bot. Gaz. 46:116. 1908.

2)

Guatemala (type locality, Cobán, Dept. Alta Verapaz) at altitudes of 1100 to 1550 meters.

Stem repent and rooting at the base, the branches erect, 30 to 50 cm. high; leaves elliptic-lanceolate, 10-16 cm. long, 2.5 to 4 cm. broad, (the petiole 1-3.5 cm. long) acute at the base, falcate-acuminate at the apex, both surfaces bearing linear cystoliths, those of the upper the larger, up to 0.2 mm. long; dioecious; ~~flow~~ staminate cymes dichotomously branched, shorter than the petioles; pistillate cymes up to 3 cm. long, in pairs in the upper axils, ~~ducts~~ dichotomously branched; achenes ovate, 0.9 mm. long, ovoid with the beak curved, the margin winged.

cm. high, very slender; stipules ovate, 4-6 mm. long, persistent; leaves rotund-reniform, 0.8 to 1.5 mm. long, and broad, petioled, namely up to 25 mm.), ~~the petioles~~ ~~filiform~~ coarsely crenate, the teeth round, crenate at the base, both surfaces sparsely covered with linear-spatulate deciduous hairs, dull green above, pale and glaucescent beneath; inflorescence, staminate ~~flowers~~ ~~in a~~ 2 to 3-flowered, the peduncles 1.5 mm. long, the pedicels 0.9 mm., the teeth of the perianth segments ~~4~~ mm. long, as long as the body; pistillate ~~spikes~~ globose, ~~4 to 5 mm.~~ the middle perianth segments ~~lanceolate~~, 1-1.5 cm. long, adnate to pedunculate, crenate

24

Pilea pittieri Killip, sp. nov.

~~Herbs~~ Herbaceous; stems erect, the branches ascending, 30 to 40 cm. high, glabrescent below, sparingly puberulent above; petioles linear-oblong, obtuse, 6 mm. long, 1.5 mm. broad, persistent or deciduous; petioles 1 to 3.5 cm. long, those of a pair unequal, or the one ~~two~~ two to three times the length of the other, puberulent; leaves lanceolate, 2.5 to 7.5 cm. long, 1.5 to 4 cm. broad, those of a pair similar, long-acuminate, ~~3-nerved~~ the lateral veins ~~3~~ connected ~~with~~ by a submarginal vein ~~at~~ nearly throughout the length of the blade, minutely ~~the base, dentate~~, the teeth obtuse, minutely ~~undulate~~ crenulate, 1-3 mm. long, the upper

Pilea pubescens Liebm. Vidensk. Selsk.

Skr. ser. 5, 2:302. 1851.

22) Adicea pubescens Kuntze Rev. Gen. 2:623. 1891.

Stem erect, the branches ascending, up to 30 cm. high; leaves ovate or nearly orbicular, up to 5 cm. long and 4 cm. broad, the upper approximate and larger, the lower remote often much smaller, obtuse or shortly caudate-acuminate at the apex, cordate, rounded or rarely acutish at the base, coarsely serrate or crenate-serrate, densely pubescent on the upper surface bearing minute linear especially cystoliths, the lower sparingly pubescent on the nerves; inflorescences dioecious, the staminate (fascicled) cymes axillary, the pistillate clustered at the tops of the branches, the pistillate flowers in racemose glomerules on divergent slender branches the staminate also leaf-opposed at the base of the branches; sepals 4, ovate.

Guatemala; Honduras; Costa Rica; Panama; Mexico. West Indies. South America.

23) Pilea annulata Liebm. Vidensk. Selsk. Skr. ser. 5, 2:299. 1851.

Adicea annulata Kuntze Rev. Gen. 2:622. 1891.

Costa Rica. Panama.

Stem erect, the branches ascending, 8 to 25 cm.

fuliani [2]

dark green, numerous
~~the~~ surface glabrescent, bearing minute, linear
caps-tricellular 0.2 mm. long, or less, the venules
surface pale, densely puberulent on the nerves
and veins, punctate in the veins bearing
less numerous similar cystoliths; staminate (?) [3] or dioec. [2]
~~monoecious~~ [1] ~~hermaphrodite~~ ? examined
staminate spikes solitary (apparently), in the
axils of the lower leaves, the peduncles 1 to 3
cm. long, puberulent, bifurcate at the summit,
the perianth globular, 2 mm. long, 1 to 1.2 mm.
broad, the segments linear-spatulate, revolute,
1 mm. long, 0.4 mm. broad, striate with
linear cystoliths; ~~inflorescence~~ spiciate spikes, 4 to 5 cm. long,
solitary in the axils of the upper leaves,
the peduncles slender, glabrous, ~~puberulous~~
2 to 4-forked, the flowers borne in subglobose
clusters 3 to 4 mm. in diameter, the rudolle
perianth-segment 0.7 mm. long, ovate-lobate,
the lateral segment 0.3 mm. long, acute; achene
ovate, acute, 1 mm. long, 0.8 mm. broad,
smooth.

Type in the U. S. National Herbarium, no.
1080422, collected along the Río de la Paz,
valley of the Sarapiquí River, Costa Rica, at
an altitude of 1300 meters, May 5, 1901, by H. Pittier
(no. 14149).

This species is most closely related to the Jamaican species, Pilea serrulata. The foliage of the two plants is very similar, The serration in P. serrulata being finer and in P. pittieri undulate-crenulate. Pilea serrulata apparently is dioecious, the staminate inflorescence being in the axils of the upper leaves and branched similar to the pisticlate inflorescence. In Pilea pittieri The staminate spikes are borne in the axils of the lower leaves on relatively short peduncles. The segments of the P. pittieri male flowers are much longer and broader, and the sepals much larger, than in P. serrulata.

Pilea pteridelada Donn. Smith, Bot. Gaz. 31:121. 1901.

25) Stem repent, rooting, woody, the branches erect, 5 to 12 cm. high, glabrescent or pubescent at the nodes; leaves petioles 0.5 to 1 cm. long, usually pubescent; ~~connected~~ at the summit of the petiole; blades 5-10 cm. long, 2-4 cm. broad, elliptic, acuminate at the apex and base, ~~obtuse to acute, long-decurrent, pubescent~~, entire, the upper surface bearing minute fusiform and punctiform cystoliths, the lower surface glabrate, or brown-punctulate on the nerves, ~~destitute of cystoliths~~; ligules ~~stamate~~ spikes solitary in the axils, paniculately branched, the peduncles 2-2.5 cm. long; pistillate spikes (including peduncles) 3.5 to 7 cm. long, pyramidal; achenes ovate, 1.4 to 1.7 mm. long.

Costa Rica, ~~infrequent~~ (the type locality, Atirro, Province of Cartago) ~~of tablelands~~ in forests at altitudes of 100 to 600 meters.

Pilea hyalina Benzl, Denkschr. Akad. Wiss. Math. Naturw. (Wien) 1:4. ——.

Pilea Lindii Liebm. Vidensk. Selsk. Skr. sér. 5 2:299. 1851.

26) Adicea hyalina Kuntze, Rev. Gen. 2:622. 1891.
Adicea Lindii Kuntze, Rev. Gen. 2:623. 1891.

Stem erect or ~~short~~ subrepent at the base, 8 & 4 dm. high, simple or branched, glabrous, succulent; stipules minute, deciduous; petioles 0.5 to 4 cm. long, ~~subequal~~ than ½ as long as the other; leaves spreading, rhombic-elliptic or ovate, 1-6 cm long, 0.8 to 3.5 cm. broad, broadest slightly below the middle, cuneate, coarsely serrate, glabrous or sparsely pilliid-stipitate on the upper surface, the epidermis cells ~~sinuous~~ sinuous; monoecious; ~~flowers~~ fibers ~~androgynous~~, two staminate ~~flowers~~ to each pistillate, 2 to 4 in the apils of nearly all the leaves, 0.7 to 2.5 cm. long, pleurolepidoid, androgynous, the staminate flowers few, the pistillate flowers closely congested in numerous subcontinuous glomerules; achene ovate, 0.4 mm. in diameter.

Guatemala; Honduras; Costa Rica; Panama. South America (type locality, Brazil).

Because of similarity in the foliage this species is often confused with the North American

Pilea pumila. The achenes of the latter are however, more than twice as long as those of P. hyalina. Pilea Lindeii is merely a small-leaved form of P. hyalina.

China

Thalictrum microgynum, Lec.

Hooker's Icon. Plant. Vol. 8 - Plate 1766

Prof. Amar.

Muscosa Lindl

a Coll. Bot. ?

b hermaphrodite

Pilea (M. & C.a.)

costaricensis J.D.S. B.T. 20:294
C.R. '95

glabra S. Wats. P.A. 9.9.261:152
Mex. '91

microphylla J.D.S 19:111.94
Guat.

parvaphylla J.D.S BB fc 10

quichensis J.D.S fc 12

rupicola " fc 11

serrulifolia " fc 12

sebolophylla J.D.S BS 46:115
Guat. '05

pleuroneura J.D.S BS 19:12
Guat.

pubescens " " 31:121
OR

pubescens " 46:116
Guat.

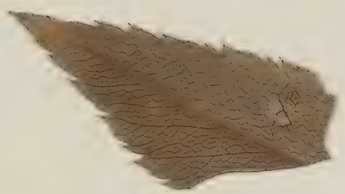
~~tuerckheimii~~

tuerckheimii J.D.S BS 46:116
Guat.

Pilea - Haiti

✓ cyclophora Pulle 15:161
✓ baltenweckii 6:4
✓ cellulosa 5:301
polyclada 7:195
microrambus 7:500
cardiophylla 7:501
pachycephala 7:195
✓ cephalantha DC 113
✓ Aristii 5:303
✓ domingensis 7:196 nu pentaria ✓
herida Sacc. Pl. cent. p148 (Wr. 2312)

✓ panetaria
✓ ciliaris
✓ " wydleri DC 115
✓ pat. hispanolensis 15:162
✓ minguetii 15:162
✓ puncticaulis - cit. tumida DC 115
✓ propinqua DC 115
setigera 5:306
✓ stolonifera 116
barahonensis 7:502
frutescens 7:197
✓ cephalophora 5:307
✓ undulata 6:5



brachyclada 7:503
✓ caulescens Fedde 15:163
semidentata DC 16:141
geminata 5:313
erosa 7:198
palustris 5:315
bicolor 7:199
✓ laxa 16:155
✓ betulifolia 5:322
✓ + var.
✓ repens DC 15:5
tippenhauerii 15:164
dispar 5:323

v. Haiti Pilea Haiti

1 nerved

✓ microphylla

✓ trianthemoides

✓ serpyllacea (H&K) = serpyllifolia in DC. 107

✓ franguevillea in DC.

alpina Urb. 5:298

✓ hermarioides

Caespitosa 7:193 a. [illegible]

3 nerved

✓ lanceolata DC. 110 ✓

melastomoides 5:299

dictyocarpa 7:499

✓ stelluligera DC 112 ✓

consanguinea DC 112

✓ rugosa DC 158

brachypila 7:200

✓ nummularifolia 158

depressa DC 159
var. microphylla

✓ lobulata 5:328

✓ diandra 5:328

Urtica punctata H.B.K. Jaen, Peru (Humboldt & Bonpland, type) =

Pilea punctata Wedd.

Urtica leptophylla H.B.K. Almaguer, Colombia (Humboldt & Bonpland, type)

Urtica melastomoides H.B.K. Bogotá region, Colombia (Humboldt & Bonpland, type).

Urtica floribunda H.B.K. Palacé, Popayáan, Colombia (Humboldt & Bonpland, type).

Urtica multiflora Poir. Peru (Jussieu, type). In Herb Juss. = Pilea multiflora Wedd.

Urtica pulegifolia Poir. Peru. Type in Herb Juss. Pilea pulegifolia Wedd.

Urtica arguta H.B.K. Nova Valencia. Venezuela (Humboldt & Bonpland, type). = Pilea arguta Wedd.

Pilea nutans Wedd. Triana 492 from Antioquia, Colombia, not type.

Pilea trichosanthes Wedd. Ecuador, Remy, collector, type. Photograph not necessary, but one of the larger and one of the smaller leaves desired, the opposite leaves being unequal.

Pilea alsinifolia Wedd. Bogotá, Colombia, Loudot, type.

Pilea anomala Wedd. Laresaja, Bolivia, Weddell, type.

Pilea subserrata Wedd. Colombia, Triana 344.

September 28, 1928.

Dear Tiedey:

If you go to Paris after receiving this letter, I wonder if you would photograph a few types of Urtica for me. I find I am quite helpless in naming recent South American material, because of a poor understanding of the species.

1. U. magellanica Poir. Port Galant (Commerson, Collector, type). Probably in the LeMarck Herbarium.

2 . U. ballotaefolia Wedd. Bogotá, Goudot, type. Also variety macrostachya Wedd., near San Antonio, Goudot.

3. U. leptophylla H. B. K. Type in the Humboldt Herbarium.

4. Urera simplex Wedd. Tequendama Falls, near Bogotá, Triana, Collector. Probably in general herbarium.

5. Urera capitata var. Pavonii. Pavon, Peru.

6. Boehmeria bullata. Type in Humboldt Herbarium.

7. Boehmeria celtidifolia H. B. K. Type in the Humboldt Herbarium.

I am sure you are having a fine time in France. Wish I were with you!

Sincerely yours,

Ellsworth P. Killip
Associate Curator,
Division of Plants.

Mr. Ivar Tidestrom,
6, Rue des Champs de Foire auf Boisteins.
Rouen, France.

Pilea.
Eggers.

2274--alpina Urb. 5: 299.
2515, a to f--cellulosa l. c. 302.
5308--intermedia.
5412--intermedia l. c. 303.
5000--phaeocarpa l. c. 307.
2153--jenminata l. c. 313.
1058, 1059, 178, 579, 3293--sanctaeae crucis l. c. 318.
6996, 7135--caribaea l. c. 320.
2506c--dispar l. c. 323.
5951--tenuicaulis l. c. 324.

Wright.

2238, 1680, 1456a, 1456--intermedia Urb. 5: 302.

1456, 537--phaeocarpa l. c. 306.

1448, 1448a--~~corrugata~~ cubensis l. c. 312.

2239--pumileoides l. c. 317.

2239--buchenavii l. c. 325.

1457, 70--filipes l. c. 327.

2242, 2234--striata l. c. 326.

2231--herniarioides l. c. 7: 499.

5257, 7454, 8390--nudicaulis (64).
10881--flavicaulis (65).
5173--parietaria (65).
5273, 5424--alpestris (66).
5426, 7351--weddellii (66).
8807, 9082--lucida (67).
8533--rufescens (68).
8540, 8700--saxicola (69).
10,604, 10,611--wullschlaegelii (69).
9907--clandestina (69).
10,946--oblanceolata (71).
9245, 9270--reticulata (71).
6490, 8496, 8963--crassifolia (71).
5295, 5296, 6748, 7397--grandifolia (72).
10,843--appendicilata (73).
8266--sessiliflora (74).
9271--impressa (74).
8532--troyana (75).
7466, 7706a, 9081, 10,574--radicans (75).
8360--nummularifolia (75).
7706, 8433--depressa (76).
10,603--rotundata (76).
6881, 10,683--harrisii (77).
10,608, 10,610--obtusata (78).

10,777--lamiifolia puberula (79)
10,948--silvicola (80).
5425, 7350--nigrescens (80).

Britton.

2813--virgata (65).

2739, 2788--lucida (67).

708--troyensis (77).

3205--lamiifolia (79).

2754--hollickii (79).

Pouzolzia Gaud. Bot. Voy. Uran. 503.

Low shrubs; stipules free, often persistent; leaves entire-margined, petiolate, 3-nerved at the base, the nerves extending to the margin, the upper surface densely covered with punctiform cystoliths; flowers monoecious, rarely dioecious, in small axillary glomerules; staminate flowers with a 4 to 5-parted or lobed perianth, the stamens 3 to 5; pistillate flowers with a 2 to 4-toothed, tubular, perianth, contracted at the throat, the stigma filiform, at length deciduous, the ovary included, free or coherent to the perianth, the achene ribbed or winged, usually black or dark brown.

Leaves white-tomentose beneath. 1. P. guatemalana.

Leaves not white-tomentose beneath.

Base of leaves oblique; petioles less than 1 cm. long. 2. P. obliqua.

Base of leaves not oblique; petioles more than 1 cm. long. 3. P. occidentalis.

(stout 1-2, not long)

3. Pouzolzia occidentalis Wedd. Archiv. Hist. Nat. Paris 9:410.

Leucococcus occidentalis Liebm. Vidensk Selsk. Skr. sér. 5, 2:311. 1851.

Honduras; San Salvador; Nicaragua; Panama. Colombia, Venezuela.

Branches stem densely pubescent; petioles slender 2 to 8 cm. long; leaves lanceolate-ovate, acuminate, rounded or subcuneate at the base, 7 to 14 cm. long, 2.5 to 9 cm. broad, piloculous above, densely

♂ staminate flowers 4-toothed, densely pubescent;
pericarp ♀ pistillate flowers truncate at the base,
alternate to the 4-toothed apex, striate, strigillose.

pubescent beneath and at the margin; pericarth of pistillate flowers 10 to 15-ribbed, densely pubescent.

2. Pouzolzia obliqua Wedd. Archiv. Hist. Nat. Paris 9:405.

Margarocarpus obliqua Wedd. Archiv. Hist. Nat. Paris 9:204.

Costa Rica; Panama (type from Paraiso, Canal zone). Colombia to ~~Co~~ Peru.

Branches minute-pubescent; ~~leaves~~ petioles 2 to 7 mm. long; leaves ovate, 2 to 7 cm. long, 1 to 3 cm. broad, acute or acuminate at the apex, rounded or subcordate at the base, densely pilose above, hirsute and brown-tomentose beneath; stipules filiform, 8 mm. long, yellow-villous.

1. Pouzolzia guatemalana (Blume) Wedd., DC. Prodr. 16[1]: 215. 1869.

Boehmeria guatemalana Blume Mus. Bot. ~~Lug~~ Lugd. Bat. 2: 206. 1865. —?

Guatemala; Costa Rica. (type from Guatemala).

~~Stem~~ Branches hirsuteulous; petioles slender, 2 to 4 cm. long, hirsute; leaves elliptic or elliptic-lanceolate, 6 to 10 (or up to 15?) cm. long, 2 to 4 cm. broad, acuminate at the apex, acute at the base, ~~the upper surface~~ hirsute above, densely white-tomentose beneath, the lower surface densely white-tomentose, the nerves strongly impressed on the upper surface, brown-~~tomentose~~ hirsute on the lower surface; pericarth

Ponzolgia

Leaves white-tomentose beneath. — 1. P. guatemalana.
Leaves not white-tomentose beneath.
Base of leaves oblique — 2. P. obliqua
Base of leaves not oblique — — 3. P. occidentalis

Herbs, shrubs or small trees; leaves simple, alternate or opposite; flowers greenish-white, monoecious or dioecious, unisexual, ~~greenish-white~~ variously clustered; perianth 2 to 5-lobed or -parted, rarely wanting; stamens as many as the perianth lobes or divisions and opposite them, the filaments inflexed in bud with reversed anthers, erected with erect anthers at anthesis; ovary superior, 1-celled; style simple, the stigma penicillate-capitate or filiform; ovule erect or ascending; fruit an achene.

Urticaceae. Nettle Family.

References: Liebm. in Vidensk. Selsk. Skr. sér. 5, 2: 285-313. 1851; Wedd. in Archiv. Mus. Hist. Nat. Paris 9: 49. and in DC. Prodr. 16[1]: 32-235. 1869.

Leaves opposite.

Plants with stinging hairs; perianth of pistillate flowers 4-parted. 1. Urtica.

Plants without stinging hairs; perianth of pistillate flowers 3-parted. 2. Pilea

Leaves alternate (the lower often opposite in Boehmeria).

Leaves opposite.

Plants with stinging hairs. 1. Urtica

Plants without stinging hairs.

Inflorescence paniculate or in globose axillary clusters, not forming a spike; perianth of pistillate flowers 3-parted. 2. Pilea.

Flower-clusters forming a spike, often leafy at the summit; perianth of pistillate flowers 4-toothed 3. Boehmeria

Leaves alternate.

~~Plants with stinging hairs~~

5. Boehmeria Jacq. Stirp. Amer. 246, pl. 157. 1763.

Trees, shrubs or perennial herbs, unarmed; ~~leaves~~ leaves alternate or ~~rarely~~ opposite, toothed, petiolate, 3-nerved, often bearing punctiform cystoliths; flowers monoecious or dioecious, in small glomerules which are sessile in the axils of the leaves or form a spike, often leafy at the summit, or rarely the inflorescence cymose-paniculate; ~~flowers~~ staminate flowers with a 3 or 5-parted, or 4-lobed perianth and a rudimentary ovary; pistillate flowers tubular or urn-shaped, 2 to 4-toothed, ~~enclosing the ovary~~ the stigma filiform, usually protruded on one side; achene enclosed in the withering perianth.

Inflorescence cymose-paniculate;
leaves broadly ovate, white-
tomentose beneath. 1. B. nivea.

Inflorescence not cymose-paniculate;
Flowers in axillary clusters, ~~glomerules~~
on the main stem and ~~the~~ branches;
leaves all alternate, dimorphic.
Larger leaves lanceolate,
sharply rugose. 2. B. aspera.
Larger leaves ovate, flat
or slightly rugose. 3. B. ulmifolia.

Flower-clusters forming a spike,
often leafy at the summit.
Spikes spreading or drooping, leafless;
leaves opposite. 4. B. candata.
Spikes suberect, leafy at the summit;
leaves opposite on the stem, alternate
on the branches. 5. B. cylindrica.

1. Boehmeria nivea (L.) Gaud. Freyc. Voy. Bot.
——. 1826.
Urtica nivea L. Sp. Pl. 985. 1753.
Boehmeria tenacissima Gaud.

Native, probably, of China. Cultivated in tropical America and possibly established in Nicaragua and Salvador.

Leaves up to 13 cm. long, 12 cm. broad, obtuse to caudate-acuminate, cordate or cuneate at the base, coarsely serrate, scabrous above "Seda vegetal"

2. Boehmeria aspera Wedd. Archiv. Mus. Hist. Nat. Paris 9:349.

Costa Rica, Colombia, ~~The~~ Type from Humboldt, Colombia).

Stem and branches densely pubescent; leaves thick, appressed strigose and scabrous above, densely brown-pubescent beneath, crenate-serrate, the larger ~~of this~~ 5 to 10 cm. long, 1.2 to 3 cm. broad, ~~the~~ acuminate, the smaller ovate, 1 to 3 cm. long, 0.5 to 1.2 cm. broad, acute; flowers in dense glomerules 3 to 5 mm. in diameter; ~~the staminate~~ fruiting ~~and~~ perianth ~~the fistillate above~~. ~~capsule at both ends~~, 0.5 mm. broad, tapering at both ends, narrowly marginal.

Guatemala; Costa Rica; Panama (Province of
Chiriquí) I. Mexico.

3. Boehmeria ulmifolia Wedd. Archiv. Mus. Hist. Nat. Paris : 347. 1856.

Boehmeria fallax ulmifolia Wedd. in DC. Prodr. 16 V: 198. 1869.

(Insert locality on next page here)

Stems glabrous or sparsely pilosulous, rarely densely pubescent; leaves ovate or ovate-lanceolate, ~~coarsely~~ acuminate at the apex, rounded or ~~subacute~~ acutish at the base, coarsely serrate, hispidulous and appressed-pilose above, glabrous or densely pubescent beneath, the larger 7 to 15 cm. long, 3 to 9 cm. broad, the smaller 2.5 to 7 cm. long, 1 to 4 cm. broad; fruiting perianth oblong, tapering at ~~both~~ both ends, curved, 1 mm. long, thin-marginal, densely pubescent.

4. Boehmeria caudata Sw. Prodr. 34. 1788.

Boehmeria flagelliformis Liebm. in Vidensk. ~~Selsk.~~ Selsk. Skr. sér. 5, 2: 310. 1851.

Boehmeria guatemalensis Gdgr. Bull. Soc. Bot. France sér. 4, 19: 287. 1919.

Guatemala; Costa Rica. Mexico, West Indies, South America.

Leaves broadly ovate to elliptical, 5 to 20 cm. long, 3 to 10 cm. broad, ~~serrate,~~ acuminate at the apex, acute or rounded at the base, serrate, flat or rugose above, and hispidulous, pubescent beneath; spikes up to 25 cm. long; fruiting perianth broadly ~~o~~ovate or obovate, the ~~with a membranaceous~~ margin thin, membranaceous.

5. Boehmeria cylindrica (L.) ~~Willd. Sp. 4: 340.~~ Swartz Prodr. 34. 1788.

Urtica cylindrica L. Sp. Pl. 984. 1753.

~~Boehmeria guatemalensis Edgr. Bull. Soc. Bot. France sér. 4, 19: 287. 1919.~~

~~Leaves~~

Guatemala; Honduras; Costa Rica. Throughout North America, ~~Mexico~~ West Indies, South America.

Stem usually simple, pubescent, strigillose, or glabrescent; leaves ovate to ovate-lanceolate, acuminate at apex, subcordate or rounded at base, ~~the upper~~ serrate, ~~strigillose~~, pubescent, or glabrescent, occasionally strigillose, or ~~pilose~~, beneath pubescent or hirsute, especially on the veins; ~~spikes erect~~ achene broadly ovate, with thick margin ascending thick

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Goenoeng Boender, northern slope of Mount Salak, Batavia province; altitude about 725 meters

No. WILLIAM PALMER / OWEN BRYANT } Collectors May, 1909

53

Bn. - 1

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Sindanglaia, Mount Gedé, Preanger province; altitude about 1100 meters

No. WILLIAM PALMER, OWEN BRYANT } Collectors January, 1910

1-3

V-1 ✓

S-1 ✓

PLANTS OF MISSOURI

Vicinity of Creve Coeur Lake, St. Louis

No. WILLIAM PALMER, Collector May 25, 1904

1-2

G-1

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Goenoeng Boender, northern slope of Mount Salak, Batavia province; altitude about 725 meters

No. WILLIAM PALMER / OWEN BRYANT } Collectors May, 1909

50

4-3 ✓

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Sindanglaia, Mount Gedé, Preanger province; altitude about 1100 meters

No. WILLIAM PALMER
OWEN BRYANT } Collectors January, 1910

Aruguza

50

V-1, 3 ✓

G-1 ✓

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Goenoeng Boender, northern slope of Mount Salak, Batavia province; altitude about 725 meters

No. WILLIAM PALMER / OWEN BRYANT } Collectors May, 1909

49

5-3 ✓

PLANTS OF HONGKONG

OWEN BRYANT EXPEDITION, 1909–10

No.

WILLIAM PALMER
OWEN BRYANT } Collectors

February, 1909

48

G-2 ✓

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Goenoeng Boender, northern slope of Mount Salak, Batavia province; altitude about 725 meters

No. WILLIAM PALMER
OWEN BRYANT } Collectors May, 1909

40—

5-31

PLANTS OF HONGKONG

OWEN BRYANT EXPEDITION, 1909–10

No. WILLIAM PALMER / OWEN BRYANT } Collectors February, 1909

45

3-2

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Sindanglaia, Mount Gedé, Preanger province; altitude about 1100 meters

No. WILLIAM PALMER
OWEN BRYANT } Collectors January, 1910

45

V-2, 3

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Goenoeng Boender, northern slope of Mount Salak, Batavia province; altitude about 725 meters

No. WILLIAM PALMER
OWEN BRYANT } Collectors May, 1909

44

4-3 ✓

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Goenoeng Boender, northern slope of Mount Salak, Batavia province; altitude about 725 meters

No. WILLIAM PALMER / OWEN BRYANT } Collectors May, 1909

B3

3-3 ✓

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Sindanglaia, Mount Gedé, Preanger province; altitude about 1100 meters

No. WILLIAM PALMER, OWEN BRYANT } Collectors January, 1910

31

V-1

Secret Weapon

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Goenoeng Boender, northern slope of Mount Salak, Batavia province; altitude about 725 meters

No. WILLIAM PALMER
OWEN BRYANT } Collectors May, 1909

31

4-33

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Goenoeng Boender, northern slope of Mount Salak, Batavia province; altitude about 725 meters

No. WILLIAM PALMER, OWEN BRYANT } Collectors May, 1909

31

Br-1

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Goenoeng Boender, northern slope of Mount Salak, Batavia province; altitude about 725 meters

No. WILLIAM PALMER
OWEN BRYANT } Collectors May, 1909

29

E-31

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Northwestern slopes of Mount Salak, above Goenoeng Boender, Batavia province; altitude 800-1800 meters

No. WILLIAM PALMER
OWEN BRYANT } Collectors May, 1909

26

Bo 2 ✓

PLANTS OF MISSOURI

Vicinity of Creve Coeur Lake, St. Louis

No. WILLIAM PALMER, Collector May 25, 1904

24

4-1 ✓

PLANTS OF MISSOURI

Vicinity of Creve Coeur Lake, St. Louis

No. WILLIAM PALMER, Collector May 25, 1904

Property of
Public Library

1-2-5
22

PLANTS OF HONGKONG

OWEN BRYANT EXPEDITION, 1909–10

No.

WILLIAM PALMER
OWEN BRYANT
} Collectors

February, 1909

21

5-2 ✓

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Sindanglaia, Mount Gedé, Preanger province; altitude about 1100 meters

No. WILLIAM PALMER
OWEN BRYANT } Collectors January, 1910

30

U-37

PLANTS OF MISSOURI

Vicinity of Creve Coeur Lake, St. Louis

No. WILLIAM PALMER, Collector May 25, 1904

14

5-2 ✓

PLANTS OF HONGKONG

OWEN BRYANT EXPEDITION, 1909–10

No.

WILLIAM PALMER
OWEN BRYANT } Collectors

February, 1909

8

5 - 2

5 - 3

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Northwestern slopes of Mount Salak, above Goenoeng Boender, Batavia province; altitude 800-1800 meters

No. WILLIAM PALMER
OWEN BRYANT } Collectors May, 1909

7

Bn. — 2 — V

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Northwestern slopes of Mount Salak, above Goenoeng Boender, Batavia province; altitude 800-1800 meters

No. WILLIAM PALMER
OWEN BRYANT } Collectors May, 1909

7

B 1 J

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Goenoeng Boender, northern slope of Mount Salak, Batavia province; altitude about 725 meters

No. WILLIAM PALMER
OWEN BRYANT } Collectors May, 1909

7

4-3 ✓

PLANTS OF MISSOURI

Vicinity of Creve Coeur Lake, St. Louis

No. WILLIAM PALMER, Collector May 25, 1904

6

5-2 √

PLANTS OF MISSOURI

Vicinity of Creve Coeur Lake, St. Louis

No. WILLIAM PALMER, Collector May 25, 1904

5

5-1

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Northwestern slopes of Mount Salak, above Goenoeng Boender, Batavia province; altitude 800-1800 meters

No. WILLIAM PALMER
OWEN BRYANT } Collectors May, 1909

3

Bo - 2

PLANTS OF HONGKONG

OWEN BRYANT EXPEDITION, 1909–10

No.

WILLIAM PALMER
OWEN BRYANT } Collectors

February, 1909

3

3 - 2 ✓

3 - 3 = ✓ ✓

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Goenoeng Boender, northern slope of Mount Salak, Batavia province; altitude about 725 meters

No. WILLIAM PALMER
OWEN BRYANT } Collectors May, 1909

90

4-4 ✓

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Goenoeng Boender, northern slope of Mount Salak, Batavia province; altitude about 725 meters

No. WILLIAM PALMER / OWEN BRYANT } Collectors May, 1909

89

1-3 ✓

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Sindanglaia, Mount Gedé, Preanger province; altitude about 1100 meters

No. WILLIAM PALMER, OWEN BRYANT } Collectors January, 1910

88

V-3 V

PLANTS OF HONGKONG

OWEN BRYANT EXPEDITION, 1909–10

No.

WILLIAM PALMER
OWEN BRYANT
} Collectors

February, 1909

88

3-2 ✓

PLANTS OF VENEZUELA

State of Lara

La Escoranza; subxerophytic woods.

F. Tamayo 286 Aug. 1937

87

8-1 ✓

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Sindanglaia, Mount Gedé, Preanger province; altitude about 1100 meters

No. WILLIAM PALMER / OWEN BRYANT } Collectors January, 1910

87

V - 2 - V

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Northwestern slopes of Mount Salak, above Goenoeng Boender, Batavia province; altitude 800-1800 meters

No. . WILLIAM PALMER
OWEN BRYANT } Collectors May, 1909

86

B0-1

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Sindanglaia, Mount Gedé, Preanger province; altitude about 1100 meters

No. WILLIAM PALMER / OWEN BRYANT } Collectors January, 1910

8-1

V-3 ✓

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Sindanglaia, Mount Gedé, Preanger province; altitude about 1100 meters

No. WILLIAM PALMER / OWEN BRYANT } Collectors January, 1910

79

V-2

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Goenoeng Boender, northern slope of Mount Salak, Batavia province; altitude about 725 meters

No. WILLIAM PALMER
OWEN BRYANT } Collectors May, 1909

79

4-2 ✓

PLANTS OF MISSOURI

Vicinity of Creve Coeur Lake, St. Louis

No. WILLIAM PALMER, Collector May 25, 1904

78

3-2-1

PLANTS OF HONGKONG

OWEN BRYANT EXPEDITION, 1909–10

No.

WILLIAM PALMER
OWEN BRYANT } Collectors

February, 1909

97

5-2

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Goenoeng Boender, northern slope of Mount Salak, Batavia province; altitude about 725 meters

No. WILLIAM PALMER / OWEN BRYANT } Collectors May, 1909

77

Ex 2 ✓

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Sindanglaia, Mount Gedé, Preanger province; altitude about 1100 meters

No. WILLIAM PALMER / OWEN BRYANT } Collectors January, 1910

70.

V-1

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Northwestern slopes of Mount Salak, above Goenoeng Boender, Batavia province; altitude 800-1800 meters

No. WILLIAM PALMER / OWEN BRYANT } Collectors May, 1909

66

B3 - 15

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Sindanglaia, Mount Gedé, Preanger province; altitude about 1100 meters

No. WILLIAM PALMER, OWEN BRYANT } Collectors January, 1910

66

V-1 Vorne

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Goenoeng Boender, northern slope of Mount Salak, Batavia province; altitude about 725 meters

No. WILLIAM PALMER / OWEN BRYANT } Collectors May, 1909

4-7

5-31

PLANTS OF MISSOURI

Vicinity of Creve Coeur Lake, St. Louis

No. WILLIAM PALMER, Collector May 25, 1904

BIBLIOTECA CENTRAL
U.A.N.L.

1-2-4

59

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Northwestern slopes of Mount Salak, above Goenoeng Boender, Batavia province; altitude 800-1800 meters

No. WILLIAM PALMER / OWEN BRYANT } Collectors May, 1909

95

Bo. 2

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Goenoeng Boender, northern slope of Mount Salak, Batavia province; altitude about 725 meters

No. WILLIAM PALMER / OWEN BRYANT } Collectors May, 1909

95

3-3 ✓

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Sindanglaia, Mount Gedé, Preanger province; altitude about 1100 meters

No. WILLIAM PALMER
OWEN BRYANT } Collectors January, 1910

U-7

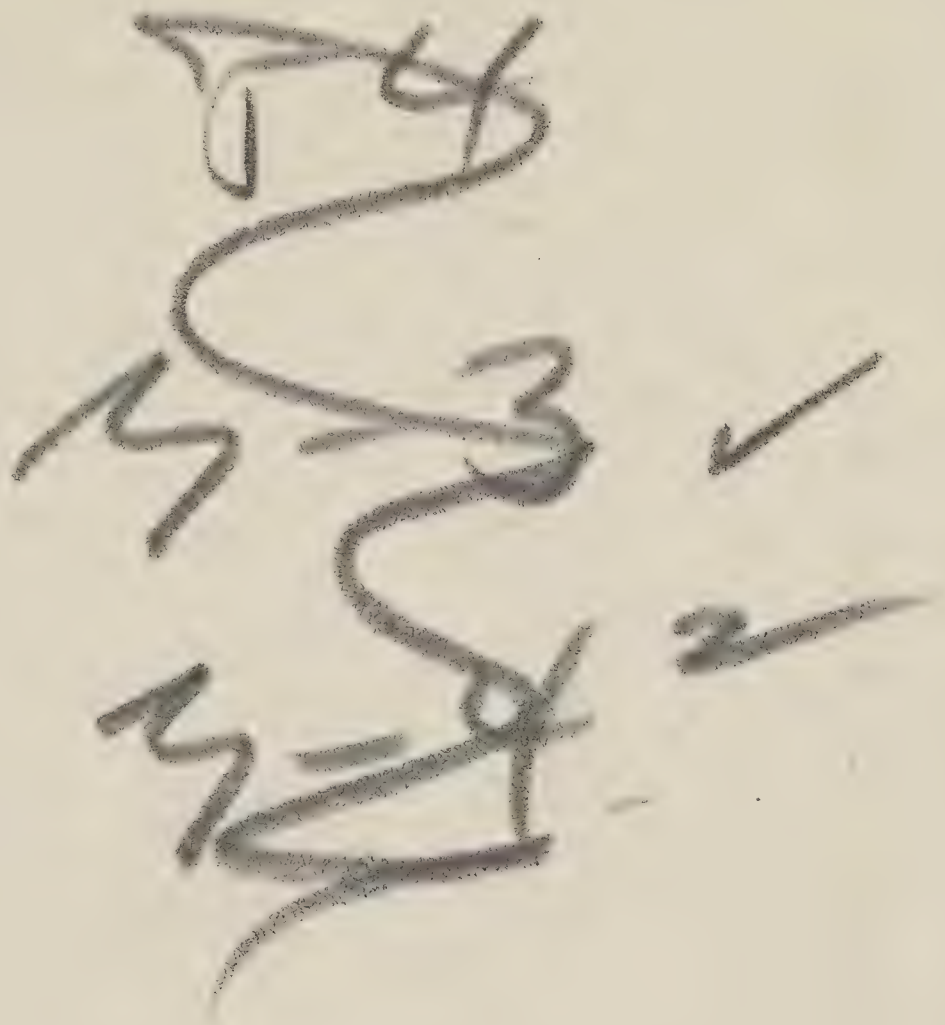
V-3 ✓

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Goenoeng Boender, northern slope of Mount Salak, Batavia province; altitude about 725 meters

No. WILLIAM PALMER
OWEN BRYANT } Collectors May, 1909



PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Sindanglaia, Mount Gedé, Preanger province; altitude about 1100 meters

No. WILLIAM PALMER
OWEN BRYANT } Collectors January, 1910

J-6

V-37

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Goenoeng Boender, northern slope of Mount Salak, Batavia province; altitude about 725 meters

No. WILLIAM PALMER / OWEN BRYANT } Collectors May, 1909

Cl

Br - 1

Bo - 1

PLANTS OF MISSOURI

Vicinity of Creve Coeur Lake, St. Louis

No. WILLIAM PALMER, Collector May 25, 1904

LIBRARY
OF THE
MASSACHUSETTS
COLLEGE
OF
ART

1-5
55

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Goenoeng Boender, northern slope of Mount Salak, Batavia province; altitude about 725 meters

No. WILLIAM PALMER / OWEN BRYANT } Collectors May, 1909

J-4

4-34

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Sindanglaia, Mount Gedé, Preanger province; altitude about 1100 meters

No. WILLIAM PALMER / OWEN BRYANT } Collectors January, 1910

5-4

V.1, 3

PLANTS OF JAVA

OWEN BRYANT EXPEDITION, 1909–10

Vicinity of Sindanglaia, Mount Gedé, Preanger province; altitude about 1100 meters

No. WILLIAM PALMER / OWEN BRYANT } Collectors January, 1910

3

V - 3 ✓

Pilea trichosanthes Wedd. in DC. Prodr. 16[1]: 120. 1869.

Stem slender, much branched; larger leaves 8 to 12 mm. long, 3 to 6 mm. wide, narrowed toward apex, attenuate to short petiole, 1-nerved, 5 to 7-toothed; smaller leaves about 2 mm. wide, rounded to obovate, sessile, entire or 2- to 3-toothed; cystoliths linear, conspicuous, on upper surface, nearly wanting beneath; staminate cymes sessile or short-peduncled, 3- to 5-flowered, the perianth segments pilosulous without; plants dioecious;

Ecuador: Bolívar: Between Guaranda and Bodegas, Remy (Par, type).

2d. Plant 60-80 meters high; leaves appearing in 4's, dimorphic, pistillate cymes short-peduncled, about 6-flowered, the achenes broadly ovate, about 1 mm. long.

Distribution: Ecuador to central Peru, 1,800 to 2,000 meters altitude.

~~Ecuador~~.

Ecuador:

Peru.

Junin: Huacapistana, Killip & Smith ~~24274~~ 24274 (F, N, Y). Oxapampa, Killip & Smith 25789 (N, Y).

Pilea in H.B.K.

Melastomoides 2:38.

lvs pilose-strigose both surfaces, copec. above; pl. minute. stem glabr.; lvs oblong, acum., obtuse at base, acroate-dent. ent. toward base, nerves pinn. beneath, membranous, dense, appressed hairs above, finely beneath 36-40 ll. X 12-13 ll.; pet 2 ll. long, glabrous; panicle pedunculate, dichot., branches glabr.; alam. pl. pedicelled, suberect, subspicate, acute apic; pistil. smaller, lower axils.

achenes ovate,

near Bogotá.

floribunda H.B.K.

lvs. long-pet., oblong, acum., obtuse base, dentate-ser. Ex. at base; subcoriac., pilose-strig. above & beneath punctate beneath; stem glabr.; 3.5 inches long, 13-14 ll. wide, pet 14-15 ll. long, glabrous; panicles long-ped, much branched

speaking for

Palace Pro Papagan; much like

preceding:

1. What does Needless do with

U. Separator Eagle HBLC?

Colomb.

Urtica

dioica
angustifolia
subinermis

palmata
bracteata
divica

Pilea pumila

Urera

caracasana

simplex
laevis
lacinata
radicans
conchifolia

Boehmeria

cylindrica

paniculata (?)
salicifolia ?
pellucidipalis ?
caffra
japonica var. nemoralis
biloba
canadata
cylindrica

Ponzolzia

Obliqua — Acuclon (Peru)
ovata — acalyphoides
occidentalis

Myriocarpa
atenuata — densiflora

Pheniap
Bonnetii — subglabra
nigra — laevigata
hirta
Integrifolia
angustifolia

Parietaria

debilis

Phenistylis

velutina — foetidemicrada
macrostachya
occidentalis

Ecuador

peploides 109
(Gal. 90)

trichosanthes 120

fallax 120

dancrodora 138

serratifolia 144

subcrenata 148

arguta 161

pubescens

Colom.

serpyllifolia 107

globosa 107

rhombea 112

alsinifolia 115

lindiniana 116

nutans 119

dendrophila 122

trianaeana 121

centradenioides 123

variegata 123

subsenata 137

carnosula 138

gondotiana 139

pteropodon 144

flemosa 144

multiflora 145

latifolia 149

fasciata 149

chrysosplenioides 152

lursuta 157

Venez

cruzeriana 122
dauciodora 138
" arenata o silvicula
mollis 150
succulenta 150
ovalis (Trinidad) 158
hyalina 160

Chile

elliptica 140

Peru

globosa 107
nitida 114
nutans 119
diversifolia 121
dauciodora 138
dombeyana 139
pseppigiana 142
multiflora 145
marginata 146
citridora 147
punctata 147
lamioides 148

ceratocalyx 148
pavonii 149
submissa 151
pulegifolia 157
hyalina 160
spruceana 161

microphylla ~
pulcascens 152

Pilea (So. Amer.)

Bolivia

anomala 137
capitellata 143
rotundata 28:311 ✓
dancicodora "
cymbifolia " ✓
filipes "
sublobata " ✓
uncrifolia " ✓

Pilea _____ of low-lying forests about 1380 m;
stem sparsely strigillose, slender, erect, with
a few lateral branches; stip. ovate,
2×1 mm., often persistent, obtuse; fl.
ovate or ovate-lanceol., 2.5-7 cm ×
1-3.5 cm., acute, acutish at base,
coarsely serrate to base, nerves ca. 10
upper 3rd ciliate at margin, dark green above, sparsely
strigillose with hyaline hairs, without
cyst. or with these in irregular patches,
below pale, punctate with elevated
dots, hirtellous on the nerves &
veins, the cyst. very numerous, nearly
punctiform but not elevated and
practically marginless; fls. three up
2 pair close together at top of stem
Pedicels, the lower ca. 2 mm
fet. 0.6-0.8 cm, lower part of stem
naked; pl. monoecious; stam.
fl. densely corymbed in a
sessile cyme (about 5 mm wide)
at summit of stem,
the fruiting ♂ fl. with 4 elongate
tips twice as long as body; (corm)

pistillate infl. consisting of
4 panicles about 2 cm. long,
radiating out from the summit
head, the flowers borne in small
clusters, the ~~flowers~~ segments minute, unequal;
achene orbicular, about 0.5 mm
long, the margin thickened.

Type at Berlin, collected
near San Ramon, Dept.
Hutagdelpan ??) Nic., Aug. 3,
1893, by E. Rothschuh (no.
189).

aff. pubera. but stam. fe. 2s.

Pilea

Pfl. S. Am. species I have seen existing.
Spec. seen at Paris.

anomala
arguta
capitellata
Cheropteroides (exactly or with type)
citriodora
dolicydora
"globosa"
hyalina
ladnioides
lindeniana or <
marginata
multiflora
pubescens

Pilea Kew

photo

✓ cruzereana #46

✓ Fendler 1247 = Smith 1223

crenata var. of lanc. OK

✓ gondotiana 89 (or have 9 it.

dombeyana 90 " " "

✓ close to my orbiculata

latifolia at Kew also

✓ submissa 123

repens 138

✓ forgeti Brown at end.

Kalbrey. 691 Ocana close to

my (Gracilipes) & mean angustifolia 10/24/31

dendrotilla Mart. type OK.

✓ with nuparif.

Pilea mex icana
Based on Liebmann specimen. (Are petioles more than 1.5 cm. long?)

Pilea (Photo all of Urban types at Berlin)

√ Pilea fasciata (Paris)
Photo; cf. with "P. gallowayana"

minutiflora W 2027.

suffruticosa W 4387.

pusilla W 2023.

cuprea Lehm. 4475.

Pilea - Y

~~Lancidium Allart 484~~

carmulosa - La Ceja, Quindio Andre 2215

~~microphylla - Hinla: Mirra, Rusby Pa 458~~

thymifolia Pachano 3

mollis Pitt. 9585; ~~Caracas Kuntze 1874~~

Buchtien 3110 (usp of anomala)

anomala ~~Rusby 1478, Bang 2490~~ (two specimens mounted here, 1 like Bucht. 3110

other - ~~Rusby 1478~~ (cystolithic marking not constant on any of these; perhaps better

kept together under anomala) ~~Bang 894, Rusby 1480,~~

cymbifolia ~~Rusby 1482~~.

~~danciodora Rusby 1483, Bang 1786~~

dombeyana "Andes" Peru, "Herb. Hooker 2031" (Y).

elliptica Chile, Gay, C. J. 1862, Pennell 12653 (Llanquihue: Peulla) ~~30~~ 250 m.

~~P. 12608 Chiloe: Castra 75 m.; Valdivia, Bridges in 1862.~~

globosa (not thymif) Boliv. Sorata, 2650 m., Mandon 1005

hyalina: ? ~~Bang 2126; Undurai (8000 ft) Rusby 2561~~

~~laurioides Pennell 14751~~

urerifolia Bucht. 3751 (Corvico, Yungas) ~~" " 3753, 3752~~

RS

spruceana Boliv. Cocos, William 199.

~~sublobata Bucht. 794~~ - Pongo, Cordillera Real, 12000 ft. Tate 184

" ~~Rusby 1484~~

~~urerif. Rusby 1481, Bang 2374~~

cymules.

pistil. cymes few branched, ± 1.5 cm. long; achenes broadly ovate, 1.5 mm. long; dioecious

Steinb 5028, larger ff up to 3 cm x 0.9 cm., all cept. perist. obovate, linear beneath; cymes sessile. Fools like Venezuela. Eos. accumulata;

Pennell 14099, same cept. as above, Lean Clem 1.

filipes: Good filipes are Rusby 1756 (type) o Bang 1788 (loc. uncertain) Rusby 1479 (Unduavi, 8000 ft) goes here too, the leaves smaller all three have persistent stipules

Cordate ovate ± 5 mm. long; monoecious o dioecious, the cymes unisexual;

Flam. ruff. in uppermost axils, the ffs in subglobose clusters on the elongate (4 to 6 cm.) branches of the cyme; perianth globose; ± 2 mm. diam, the ~~teeth~~ segments obtuse (no teeth).

strigosa

Yungas, Bang 687; Unduavi 8000 ft. Rusby 1485, Bucht. 85 Extreme: 1.5 cm. to 4.5 cm. x 3 cm; ped. 2.5 cm.; staminate ffs densely massed in a globose o subcylindric (up to 2 cm. long) head. ~~Sta~~ stipules ± 3 mm.

~~laucoidea Rusby Penn. 791~~

~~leptophylla Hbsm. 1223.~~

~~dense.~~

~~Bolivia: Sta Rosa, Klug in 1892~~

~~dense. Bucht. 2813 (Unduavi 3300 m.)~~

~~microphylla~~

~~(Cuba) La Guaya Kuntze 1328~~

~~Pitt. 11972, 9551~~

~~Olaya, "Cauca", André 2890~~

~~thymifolia: Colomb. Treaca 898 (cited by Wedd. ?)~~

260 0 3 1/4

650 0

780 0

Pilea (Ecuador)

Leaves 1-nerved; less than ~~2~~ 8 mm. long - - 1. P. microphylla

Lvs 3 - " more - - - -

Lvs of a node conspicuously ~~unequal~~ & dissimilar

Stems glabrous; larger leaves less than 1.5 cm. long - - - - - - - 2. P. trichosanthes

~~Lvs~~

Stems hirsute above; larger leaves more than 1.5 cm. long - - - 3. P. fallax.

Lvs. of a node ~~[illegible]~~ similar.

Peduncles of pistillate cymes longer than the petioles - - - - - - 4. P. dauciodora

Stems glabrous - - - - - 5. P. pubescens

" pitose or hirsute

1. P. microphylla (L.) Liebm.

A species widely distributed thruout tropical America. Its ~~many forms have led to the proposal of a number of separate species.~~ Its extreme variability in size and habit of growth has led to the proposal of a number of separate species. Pilea microphylla ~~often occurs in the crevices of rocks~~ may be found growing on boulders in ~~the bottom~~ ~~S~~ streams in dense wet forests or on dry stone walls about a city. It is often ~~[illegible]~~ cultivated ~~about [illegible]~~ in the tropics ~~as a border~~ for ornamental purposes under the name of lace-plant.

Peduncles shorter than petioles.

Stem & leaves glabrous.

~~[illegible]~~

~~[illegible]~~

Caespitose; leaves less than
5 mm. long - - - - - - 6. P. subcrenata.

Not caespitose; leaves more
than 1 cm. long - - - - - 7. P. serratifolia.

Stem & ~~leaves pubescent~~.

a. Leaves entire.

b. Lvs 1-nerved.

bb. " 3- "

aa. Leaves not entire.

b. Lvs 1-nerved.

bb. Leaves 3-nerved

c. Lvs. dissimilar or unequal.

d. Smaller leaf less than 1.5 cm. long.

dd. " " more " " "

cc. Lvs. similar or equal, or larger not more than twice the smaller.

d. Stem & lvs. both glab.

e. Ped. of pist. heads longer than petioles.

ee. " " " " shorter " "

dd. S_e. $o_e L_e$. pub.

microphylla /
a b

Sa.

globosa 4

~~[illegible]~~

a b

Col.
Peru

rhombea 19 Col.

a bb

nitida 23
a
bb

Peru

alsinifolia 25

a

ff

Col.
(Bogota)

Lindeniana 28

a
bb.

Col.
Bogota

nutans 37

aa
bb
c
d

Pand (Gray)
Col. (Antiqu)

Trichosanthes 39 Ecuad. ?

aa
bb
c
d

fallax 40
aa
bb
c
d

diversifolia 42

Perez

aa

bb?

cc

dd?

triandrana 44

aa
bb
c
d

Col.
(Dagua)

dendroplula 45

aa

bb

c

d

Col.
Peru
Braz.
Guiana

Ungeriana 46

aa

bb

c

d

Venez.

€1

Centradenioides 47.

Colo.
(Baker)

aa
bb
c
d

Variegata 48

aa

bb

c

dd

Col.
(Moc)

anomala 88

Bol.

aa
bb
cc
d
e

subserrata 86

Col.

aa
bb
cc
d
e

Carnosula 87

Col.

aa

bb

cc

d

e

dauciodora 85

aa
bb
cc
d
e

Peru
Ecua.
Venez.
(Jovar)

goudotiana 89

Col.

aa
bb
cc
d
e

dombeyana 90

Peru

aa
bb
cc
d
e

elliptica 91

Chile

aa
bb
cc
d
e

poeppigiana 98

Peru

aa
bb
cc
d
e

capitelkata 101

aa
bb
cc
d
e

Bol.
(Fijumi)

pteropodon 102

Col.

aa
bb
cc
d
ee

flexuosa 103

aa
bb
cc
d
ee

Col.
(Quindiu)

serratifolia 104 Ecuad.

a a
b b
c c
d
e e

multiflora 107

aa
bb
cc
d
ee

Col.
(Bog.)
(Pop.)
Peru

Margarita 108

Peru

aa
bb
cc
d
ee

citriodora III

Pone

aa
bb
cc
d
ee

Peru

punctata 112

aa

bb

cc

d

ee

Lamioides 115 Peru

aa
bb
cc
d
ee

subvenata 116

Ecuad.

aa
bb
cc
d
ee

Ceratocalyx 117

Peru?

a a
b b
c c
d d
e

latifolia 118

Col.

aa
bb
cc
dd
e

fascicle 119

aa
bb
cc
dd
e

Col.
(Chroa)

favonii 120

Peru

aa
bb
cc
dd
e

Mollis 121 Venny.

aa
bb
cc
dd
e

succulenta 122 Venez

aa
bb
cc
dd
e

submissa 123 Peru

aa
bb
cc
dd
e

chrysosplenioides 127

Col.
(Prusing)

aa
bb
cc
dd
e

pubescens 130
(montaria)
(guaranensis)

aa
bb
cc
dd
e

Very.
Guiana

urticella 142

Very.

aa
bb
cc
dd
e

pulegifolia 143 Peru?

aa
bb
cc
dd
e

bursuta 144 Col.

aa
bb
cc
dd
ee

Ovalis 146

Tree !

aa
bb
cc
dd
ee

hyphina 151 Ubig.

aa
bb
cc
dd
ee

Peru

spruceana 156

aa

bb

cc

dd

ee

Asguta 157

aa

bb

cc

dd

ee

Eaurod.
Verry (?)

urerifolia Rusby BJC 28: 312 '01 Bol.

Colombian Pilea

§ 2. Heterophyllae

Smaller leaf ~~less~~ more than 1 cm. long,
~~Larger leaf more than 7 cm.~~ acute — P. triaenae
~~" " less " 7 " obtuse~~ — P. dendrophila

Smaller leaf less than 1 cm. long.
Larger leaf less than 4 cm. " — P. nutans
" " more " 4 " "

Smaller leaf less than 5 cm broad. — P. centinelerioides
" " more " 5 " " — P. variegata

Glabratae - Longipedunculatae

Stipules short, triangular.

Leaves 6-9 cm long. — — — P. subserrata

" 2.5-4 cm " — — — P. carnosula.

Stipules large, ovate, oblong, or round.

Basal nerves not reaching to apex. — — — P. dauciodora.

Lvs. 1-3 cm. long — — — P. gondottiana

Lvs 6-8 cm. " — — — P. gondottiana

Glabratae - Brevipedunculatae

Lvs. 1.5 - 2 cm. long. — — P. pteropodon.

Lvs more than 2 cm. long.

Masc. & fem. cymes both shorter than petioles. (lvs up to 7 cm.). P. flexuosa.

Masc. cymes much exceeding petioles. P. multiflora

Rudescentes – Longipedunculatæ

Lvs more than 6 cm. long (8-12 long) P. latifolia.
Lvs 6-8 cm. broad (8-10 long) P. fasciata.
" 5-6 " " (8-10 long)
Lvs less than 6 cm. long (3-5 cm) P. chrysophylloides

Rubescentes - Brevipedunculatae

Basler Herb

Pilea

Lax slender herb; stems 1/2-20 cm. long, (probably 2/3 longer) ~~fleshy~~ herbaceous; leaves of a pair alike or unequal, the larger, 3 obovate or orbicular-obovate, 7-12 mm. l., 5-8 mm. wide, rounded, obscurely tridentate at apex or subentire, acute at base, ~~obtuse~~ sessile, 2-nerved tripliveined (principal pair lateral veins scarcely more prominent than others), the smaller two obovate reniform, 2-3 mm. long, 4-5 mm. wide subtriplinerved, entire, ~~simple~~ pol. apparently dioicous; ~~flowers~~ in ± 3-4-flowered heads in axils of ~~upper~~ leaves, the ~~upper~~ ~~heads~~ ~~sessile~~ aggregate ± 0.5 mm. long, ~~sessile~~.

Type. Jamaica 3721, near mouth of Hapo.

Fls dark gr. above, paler beneath, crystal. finely lin.

84. Pilea santanderana Killip, sp. nov.

Plant herbaceous, repent at base, the stems erect, up to 60 cm. high, simple or few-branched, succulent, glabrous below, rufo-pilosulous above; stipules lanceolate, 1.5 to 2.5 mm. long, deciduous; petioles of a node subequal or one about half as long as the other, 0.5 to 3 cm. long, rufo-pilosulous; leaves of a node similar and subequal, oblanceolate or elliptic-lanceolate, 6 to 14 cm. long, 2 to 5 cm. wide, caudate-acuminate at apex, rounded at base, serrulate or crenate-serrulate nearly to base, 3-nerved, (lateral nerves about midway between midnerve and margin, extending to base of acumen; secondary nerves numerous, at right angles to primary nerves), dark green and glabrous above, paler and rufo-pilosulous on the nerves beneath, the cystoliths fusiform and punctiform; plants dioecious; pistillate flowers in subsessile or short-peduncled cymes, shorter than the petioles, the perianth segments linear, subequal, about 1.3 mm. long; achenes broadly ovate, 1.5 mm. long.

Type in the U. S. National Herbarium, no. , collected in dense woods along stream, vicinity of Las Vegas, Department of Santander, Colombia (Eastern Cordillera, altitude 2600 meters), December 23, 1926, by E. P. Killip and Albert C. Smith (no. 16019). Killip and Smith 15949 and 16126 from the same locality, also belong to this species.

This is similar to P. salentana, but the leaves are oblanceolate, less deeply toothed, and bear numerous punctiform cystoliths.